# Climate change adaptation and health in Southeast Asia:

What do regional organisations contribute?

by

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# Candidate's declaration

This thesis contains no material that has been accepted for the award of any other degree or diploma in any university. To the best of the author's knowledge, it contains no material previously published or written by another person, except where due reference is made in the text.

Daniel Gilfillan

February 27, 2018

Date

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#### Abstract

Around the world climate change is already impacting on health, via more frequent and intense extreme weather events, as well as by altering the prevalence and distributions of vector- and water-borne diseases. The high and rapidly growing population in Southeast Asia is heavily reliant on agriculture for livelihoods, which makes it vulnerable to climate change impacts such as sea level rise and typhoons. In this context, regional organisations are playing an increasingly important role in climate change adaptation and health. For example, the Asian Development Bank and the Asia-Pacific Regional Forum on Health and Environment are both involved in adaptation and health initiatives. Despite this, however, there is a lack of empirical research on the value added by regional organisations to adaptation and health actions and initiatives.

Prepared as a thesis by compilation, this research helps fill this gap by examining the effectiveness of regional organisations supporting national level adaptation and health in Southeast Asia. A three-step process was used for this examination. Firstly, three national case studies were conducted in Southeast Asia, focussing on adaptation and health. These individual pieces of research used an open-ended research methodology to limit researcher bias, with the goal of identifying similarities and differences in governance-related adaptation and health challenges across the case-study countries. Secondly, a systematic framework was developed for assessing regional organisations supporting climate change adaptation. So as to be applicable across sectors and geographies, the framework was developed outside of Southeast Asia and outside the health sector. Thirdly, the resultant framework was used to guide the research examining regional organisations supporting adaptation and health initiatives in Southeast Asia, to both determine their strengths and weaknesses, and to identify pathways to improve their effectiveness.

The main findings of this research were that, first, coordination challenges exist between organisations, sectors and scales, as well as across sub-national boundaries. In all cases, poor coordination is limiting and constraining adaptation and health. Further, coordination challenges are limiting adaptation and health in all three case study countries, despite different levels of development and different governance arrangements. Second, regional organisations are not necessarily well-placed for direct project implementation, but may

more effectively support adaptation through creating enabling environments at the national level. This may be done through supporting national level capacity building, and acting as specialised knowledge banks, such as for climate-modelling data. Third, where there is a lack of coordination, mandate overlaps for regional organisations working in the same region have negative impacts on climate change adaptation, including adaptation and health. A final finding is that institutionalised and incentivised coordination between such regional organisations would benefit adaptation and health initiatives in two key ways. Firstly, both the administrative workload on developing country government agencies and redundancies in the work of regional organisations would be reduced. Secondly, better inter-organisation coordination would provide regional organisations with a stronger foundation for supporting countries to coordinate across scales, sectors and boundaries.

The findings outlined in the paragraph above are the basis for the five primary contributions to the academic literature that this thesis makes. Firstly, coordination is a major adaptation and health constraint, regardless of governance arrangements, ideologies or scales. Secondly, a framework for assessing regional organisations coordinating climate change adaptation was developed. Thirdly, the utility of the developed framework was demonstrated across three regions, as well as across sectors. Fourth, integrating the strengths of project and governance approaches provides an avenue for improving adaptation and health results. The final theoretical contribution of this thesis is that integrating the strengths of these two approaches, by coordinating collaboratively, will enable better regional organisation support for coordination within countries. This body of work will provide insights for national governments as well as regional and international organisations on how they can improve their interactions to better support adaptation and health outcomes.

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## List of acronyms and abbreviations

ADB Asian Development Bank

AIMS Atlantic, Indian Ocean, Mediterranean and South China Sea (groupings of

small island developing states)

APRF Asia-Pacific Regional Forum on Health and Environment (prior to October

2016 known as the Regional Forum on Environmental Health [RFEH])

AR5 Fifth Assessment Report of the Intergovernmental Panel on Climate

Change

ASEAN Association of South East Asian Nations

BRACE Building Resilience Against Climate Effects (a United States Centers for

Disease Control framework for assessing climate-related health impacts)

CARICOM Caribbean Community (and Common Market)

CCA Climate Change Adaptation

CCCCC Caribbean Community Climate Change Centre

CCCO Climate Change Coordination Office (Cambodia)

CCD Climate Change Department (Cambodia)

CCTWG Climate Change Thematic Working Group (initiative of the Asia-Pacific

Regional Forum on Health and Environment)

DARD (Provincial) Department of Agriculture and Rural Development (Vietnam)

DoH (Provincial) Department of Health (Vietnam)

DONRE (Provincial) Department of Natural Resources and Environment (Vietnam)

DRD Department of Rural Development (Myanmar)

DRR Disaster Risk Reduction

EBPH Evidence –Based Public Health

EHCP Environment and Health Country Profiles

EIA Environmental Impact Assessment

FAROCCCA Framework for Assessing Regional Organisations Coordinating Climate

Change Adaptation

FDI Foreign Direct Investment

GAD General Administration Department (Myanmar)

GCCA:PSIS Global Climate Change Alliance: Pacific Small Island States

GEF Global Environment Facility

GMS Greater Mekong Sub-region

HEMA Health and Environment Management Agency (Since late 2016 known as

Vietnam Health and Environment Management Agency (VIHEMA)

IBUR Initial Biennial Updated Report

IFRS International Financial Reporting Standards

IMF International Monetary Fund

INDC Intended Nationally Determined Contribution

INGO International Non-Government Organisation

IPCC Intergovernmental Panel on Climate Change

M&E Monitoring and Evaluation

MAPDRR Myanmar Action Plan on Disaster Risk Reduction

MARD Ministry of Agriculture and Rural Development (Vietnam)

MoH Ministry of Health (Cambodia / Vietnam)

MONRE Ministry of Natural Resources and Environment (Vietnam)

MPI Ministry of Planning and Investment (Vietnam)

NAPA National Adaptation Programme of Action

NAP-CC National Action Plan on Climate Change (Vietnam, 2012-2020)

NCCC National Climate Change Committee (Cambodia)

NCCS National Climate Change Strategy (Vietnam, 2011)

NCSD National Council for Sustainable Development (Cambodia)

NE No evidence (used to indicate FAROCCCA indicators for which evidence was

unavailable)

NEHAP National Environmental Health Action Plan

NGO Non-Government Organisation

NLD National League for Democracy (Myanmar)

NTP-RCC National Target Program to Respond to Climate Change (Vietnam, 2008)

NWP Nairobi Work Programme (sub-component of the United Nations

Framework Convention on Climate Change)

PACC Pacific Adaptation to Climate Change Programme

PAP-RCC Provincial Action Plan to Respond to Climate Change (Vietnam)

PI Perceptual Indicator (Used to indicate FAROCCCA indicators for that

require intimate understandings of an organisation to answer and which

are likely to be subjective in nature)

PICTs Pacific Island Countries and Territories

P-SIDS Pacific Small Island Developing States

RCT Randomised Controlled Trial

RFEH Regional Forum on Environmental Health (Renamed the Asia-Pacific

Regional Forum on Health and Environment [APRF] in October 2016)

RO Regional Organisation

RRD Relief and Resettlement Department (Myanmar)

SAR Second Assessment Report of the Intergovernmental Panel on Climate

Change

SIDS Small Island Developing States

SMART Specific, Measurable, Achievable, Realistic, Time-bound (relating to project

objectives)

SOPAC Pacific Islands Applied Geoscience Commission

SPACC Special Programme for Adaptation to Climate Change: Implementation of

Adaptation Measures in Coastal Zones (Caribbean regional program)

SPC Secretariat of the Pacific Community (now called the Pacific Community)

SPREP Secretariat of the Pacific Regional Environment Programme

SRCC Strengthening Resilience to Climate Change in the Health Sector in the

Greater Mekong Subregion Project (an Asian Development Bank Project)

SWSC South West Steering Committee (Vietnam)

TWG Thematic Working Group (In Chapter 2: Technical Working Group)

UN United Nations

UNDP United Nations Development Program

UNEP United Nations Environment Program

UNFCCC United Nations Framework Convention on Climate Change

UN-OHRLLS United Nations Office of the High Representative for the Least Developed

Countries, Landlocked Developing Countries and Small Island Developing

States

WASH Water and Sanitation, Hygiene

WHA World Health Assembly

WHO World Health Organization

# Part A: Introduction

"Managing the environment is about managing people"

Eka Sulistiyowati, Environmental Science Lecturer, State Islamic University Sunan Kalijaga Yogyakarta, Indonesia

"The measure of intelligence is the ability to change"

Albert Einstein

# Chapter 1: Research Approach and Context

### 1.1 The challenge

Governance is a vital component of dealing with climate change. According to Gisselquist (2012) good governance approaches focus on both strengthening government institutions and minimising corrupt activities. Because of the growth in climate financing (e.g. ADB 2016a), good governance is increasingly important to ensure that climate change adaptation funds are well spent. However, governance concerns itself with processes of decision-making, the exercise of authority, and management within collectives such as a societies or countries (Gisselquist 2012), and thus extends beyond financial management. For example, access to freshwater is a growing concern in South-east Asia. With climate change leading to erratic rainfall patterns, it would be easy to see freshwater access as a technical issue. However, the United Nations Department of Economic and Social Affairs, argues that it is largely a governance problem, relating to water distribution and management of natural eco-systems (UNDESA 2014).

Access to water for agriculture, bathing and drinking has direct and unequivocal links to human health. Malnutrition, hygiene-related health issues, food-, water- and vector-borne diseases all link to water management. Health also has direct links to other climate change-related areas such as air quality, economic development and socio-economic status. For example, the fifth assessment report of the Intergovernmental Panel on Climate Change (AR5) notes that climate change will have human health implications in Southeast Asia as a result of impacts on "water resources, agriculture, coastal areas, resource-dependent livelihoods, and urban settlements and infrastructure" (Hijioka *et al.* 2014: 1348). Thus, climate change will exacerbate health challenges across Southeast Asia, particularly through impacts in health-determining sectors that are not under the control of health authorities. This is concerning. Even in developed nations, addressing health determinants is largely under-prioritised and under-funded. For example, Figure 1.1 below compares determinants of health status with national health expenditure in the United States.

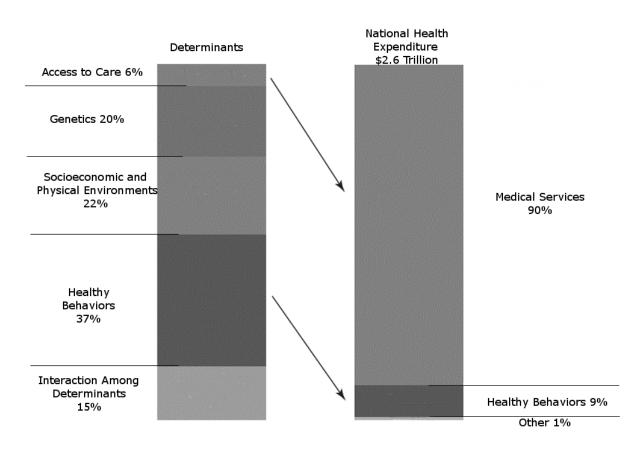


Figure 1.1: Determinants of Health Status vs. Health Expenditure in the United States (Source: Hubbard et al. (2013))

Because of the strong links between health and other sectors, health sector governance is an important issue. To improve adaptation-related health outcomes by addressing cross-sectoral health determinants requires health ministries to work collaboratively with other government ministries. This is because health determinants are factors, both within and outside of health ministry responsibilities, that will have future impacts on population health (e.g. Watts *et al.* 2015a), such as today's air pollution levels influencing future rates of lung cancer. However, in Cambodia and Vietnam, for example, health ministries are less well resourced (financially, materially and human resource-wise) than other ministries, resulting in power differentials that undermine health ministry coordination with health determining sectors such as environment or agriculture (Gilfillan 2017, Gilfillan *et al.* 2017). In this context, some authors have argued that the health sector should build on its decades of experience seeking individual behaviour change through health promotion (Watts *et al.* 2015a), and to take on guidance and regulatory roles in health determining sectors such as water and sanitation or disaster risk reduction (Watts *et al.* 2015b). Despite the need for governance

arrangements to support adaptation and health, a review of the relevant literature indicates a focus on technical solutions that are difficult to translate into policy (e.g. Ward *et al.* 2009).

In this thesis, the term 'adaptation and health' is used to refer to climate change adaptation from the perspective of human and population health, including recognition that many health determinants are outside the direct influence of health authorities. Climate change adaptation is defined by the Intergovernmental Panel on Climate Change (IPCC) as "The process of adjustment to actual or expected climate and its effects". This adjustment can either be incremental, aiming not to disrupt existing processes and systems, or transformative (IPCC 2014a: 1758). With regards to governance of adaptation and health, incremental adaptation may, for example, be the provision of budget allowances to flood proof a new or existing hospital. Transformative adaptation, however, aims to make fundamental system changes that enable an adaptive response. An example of transformative adaptation and health would be to establish, fund and incentivise coordination mechanisms to ensure that adaptation and health is considered in health determining sectors.

This research explored adaptation and health in three Southeast Asian countries, and built on this to examine the effectiveness of two contrasting models of regional, supra-national, support for health sector adaptation to climate change. The first model of support provides conventional project-based support, which includes funding and technical support. The second model uses a governance approach, bringing together senior government officials from health and environment sectors to discuss solutions for common environment and health problems. The examination of these two models is used to assess the effectiveness of regional organisation (RO) support for national level adaptation and health. It finds that both models have weaknesses but also complementary strengths; integrating the two models could offer a solution that more efficiently and effectively supports adaptation and health in Southeast Asia.

Figure 1.2, below, provides a visual representation of the thesis, divided into parts and into chapters. This figure is repeated at the beginning of each chapter, with highlighting used as a 'reminder' of the reader's current location in the thesis.

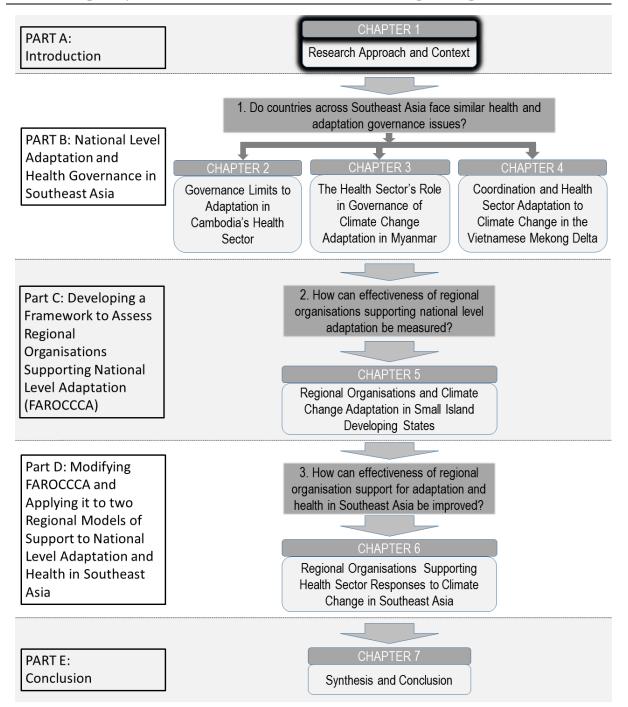


Figure 1.2: Thesis process diagram (highlighting indicates current location in thesis)

## 1.2 Key aspects and importance of this research

The importance of adaptation and health is increasingly being recognised. For example the 10<sup>th</sup> annual focal point forum organised by the Nairobi Work Programme (NWP) of the United Nations Framework Convention on Climate Change (UNFCCC) focussed on climate change adaptation (CCA) and health (UNFCCC 2016). At the next level down ROs such as the Asian Development Bank (ADB) and the Asia-Pacific Regional Forum on Health and Environment

(APRF) are implementing climate change and health initiatives (RFEH 2014b, ADB 2016c). At the national level, in Southeast Asia, health and climate change are also being prioritised. For example, Myanmar's intended nationally determined contribution (INDC) to the UNFCCC puts public health as a second tier priority, out of four, in responding to climate change (MOECAF 2015); Vietnam's INDC and other national policy documents prioritise climate change and health (GOV 2015a); and Cambodia's National Adaptation Programme of Action (NAPA) gives human health as one of four key priority areas (RGC and MoE 2006).

There is also a great deal of variety between the national level adaptation and health responses. For example, in Myanmar health sector climate change responses focus on urgent post disaster recovery, including the establishment in 2016 of a disaster response division within the health ministry (Gilfillan (Under Review)-a). In Vietnam each of the 63 provinces has a provincial action plan to respond to climate change, many of which refer to health, however despite this, there is limited proposed expenditure on health-related actions, as well as poor coordination between government departments, such as agriculture and health, on actions that span departmental mandates (Gilfillan *et al.* 2017). In Cambodia, coordination between ministries and agencies is not prioritised, and a poorly resourced health sector inhibits the health ministry's ability both to engage effectively with other ministries on climate change issues, and to implement policies (Gilfillan 2017).

The historical and contemporary contexts of Myanmar, Vietnam and Cambodia provide insights into the reasons for differences in national level prioritisation of public health, and CCA. As argued by Renshaw (2013), a transition from military dictatorship to democracy, especially where the architect of the transition is the military itself, is generally challenged by credibility issues, as opposition and the public must ask themselves why they would trust their former dictators. In Myanmar, the transition government, under President Thein Sein, made a variety of moves that Renshaw (2013) argued gave credence to the espoused liberalisation agenda in Myanmar. These included relaxing beureaucratic restraints on communication (e.g. webmail and other internet based communication systems, as well as access to global news sites). However, despite the apparent sincerity of the reform movement, there was a great deal of uncertainty in the first two years following President Thein Sein's election to the presidency (Renshaw 2013). In light of this, it is unsurprising that "those at the helm of Myanmar's transition" saw "the imperative to improve health on an

urgent basis" (Morrison *et al.* 2013: 2), as a way to reassure opposition and the general public of the long term focus of the reform movement. The imperative to improve health can be seen in the budgetary increases in health over the period 2011/12 and 2015/16, both in dollar terms and in percentage of government expenditure (e.g. Myint *et al.* 2015, Cashin *et al.* 2017).

Vietnam's history differs substantially, with the Vietnamese people and government being able to draw on their history of defeating two western powers. On top of this, Vietnam has experienced several decades of strong economic growth and is classed as a middle income country (The World Bank 2018). Thus the Vietnamese government has not had to grapple with the same issues of credibility as faced the Thein Sein government in Myanmar. Climate change, however, poses a serious threat to Vietnam's economy. Despite increasing industrialisation, over the period 2005 – 2015 agriculture contributed around 20% or Vietnam's annual GDP (Iram and Malik 2017), and it employs 48% of Vietnam's workforce (CIA 2017). The climate change threat to Vietnam's economy comes largely because the Mekong Delta, for example, produces over half of Vietnam's domestically consumed rice and almost 90% of exported rice (Kontgis *et al.* 2015). In response to this threat, the national government was an early adopter of national legislation on adaptation (GOV 2008), which included a requirement for each province in Vietnam to prepare a climate change adaptation action plan.

Cambodian rule can be described as a "personalist dictatorship" of Hun Sen's (Morgenbesser 2018: 201). In a personalist dictatorship a single individual effectively controls "access to office and the fruits of office" and also control over policy (Geddes 2003: 51). In order to achieve this status, the dictator must have made a sustained effort to amass ever greater power, often through patronage such as awarding of business contracts, landholdings and cash handouts (Morgenbesser 2018). As a further indication of the focus on building and maintaining the power and prestige of the elite in Cambodia, Hughes (2015) described Hun Sen's Cambodian People's Party (CPP) as consistently resorting to buying votes, administratively excluding those who might vote for the opposition, and also using, and threatening to use, violence in order to ensure electoral victory. Thus, the Cambodian government focus is on maintaining control at the expense of their responsibility to achieve economic and social development, and to respond to the threats posed by climate change.

Despite the differences between the priorities and approaches in these three countries, it is evident that national level adaptation and health is being taken seriously across the Southeast Asian region. However, there is limited research into national level adaptation and health or the effectiveness of regional support mechanisms.

## 1.3 Research questions

To fill gaps in existing knowledge on adaptation and health, this research sought to answer the following over-arching question: "How could the effectiveness of regional organisation support for national level adaptation and health in Southeast Asia be improved?" This overarching question led to detailed research questions from three separate perspectives:

- National level health sector adaptation consideration of national level health sector adaptation challenges, and the governance-related factors which influence those challenges.
- 2. Assessing regional support for climate change adaptation building a framework for assessing the effectiveness of RO support for adaptation and demonstrating its utility.
- 3. Southeast Asia and ROs supporting health sector adaptation assessing the strengths and weaknesses of two models of support for national level adaptation and health currently being used by ROs, and how the two approaches could be improved.

The thesis focussed on climate change adaptation governance, including examining the role regional organisations play in supporting CCA, adaptation and health. There are strong correlations between health and other major climate change-related areas of concern, such as water, energy and agriculture (e.g. Watts *et al.* 2015a). Additionally, human health both benefits from, and enables, improved adaptation (Smyle 2014). Thus, the health sector provides a useful perspective from which to explore issues of CCA governance.

While Part B of this thesis was used to to identify similarities and differences in governance-related constraints on adaptation and health, the research questions posed for each of the three countries examined in Part B differed. The differences in research questions came from the research design, which enabled learning in each national case-study to inform subsequent case-studies, and also allowed for differing national circumstances to guide the research.

More detail on the approaches used in the national case-studies is provided in section 1.6.1 of the thesis. The use of differing research questions did not impact on data gathered: the research questions were used to focus the data analysis, thereby providing a means to analyse particularities of national governance arrangements and circumstances. Approaching the research in this manner supported the focus in the later parts of the research project on regional organisations interactions with national governments, and how to improve the effectiveness of their support. The detailed research questions examined are shown in Table 1.1 below:

Table 1.1: Thesis research questions divided by thesis section

Thesis Section / Perspective	Research Questions
Part B: National level health sector adaptation	<ul> <li>Are there governance obstacles that are limiting adaptation and health in Cambodia?</li> <li>What does the future for adaptation and health in Cambodia look like?</li> </ul>
	<ul> <li>What are the primary governance factors that constrain and limit adaptation and health in Myanmar?</li> <li>What scope exists for the health ministry to play a role in addressing adaptation and health governance constraints?</li> </ul>
	<ul> <li>What are the relationships between cross-sectoral, cross-scale and cross-boundary coordination and adaptation and health in Vietnam?</li> <li>How could these three dimensions of coordination be</li> </ul>
	addressed to improve adaptation and health outcomes in Vietnam?

Part B of the thesis describes similar governance and coordination issues relating to health sector adaptation to climate change across the three countries examined despite the differences in overall governance styles and their levels of development. This indicates an areas that ROs could support, and ROs in Southeast Asia are supporting national level adaptation and health. However, there is limited research into the effectiveness of the support provided by ROs. Thus, the Framework to Assess Regional Organisations Coordinating Climate Change Adaptation (FAROCCCA) was developed to assess ROs supporting national level CCA. It was developed outside the health sector and outside Southeast Asia in order to ensure context specific weaknesses were not built into it.

**Part C:** Developing an assessment framework for regional organisations supporting climate change adaptation

- How can we assess the effectiveness of regional organisations supporting climate change adaptation activities within nations?
- Do regional organisations operate at an appropriate scale to effectively support national level adaptation actions?

Having demonstrated FAROCCCA's utility, it was then modified and applied to assess ROs contributing to health sector adaptation in Southeast Asia.

Part D: Applying the assessment framework from Part C to regional organisations supporting national health and adaptation in Southeast Asia.

- How effective are governance- and project-based models of support for national level adaptation and health in Southeast Asia?
- How could the support provided by regional organisations to national level adaptation and health in Southeast Asia be improved?

The next sections outline approaches used as well as the thesis structure.

#### 1.4 Publications

A thesis by compilation is permitted under the rules of the Australian National University (ANU 2016). This thesis comprises five core chapters, which have either been published, accepted for academic publication, or are currently under review by an academic journal (Chapters 2-6). It also includes both introductory and concluding chapters. Because of differing requirements among journals, style and structure of each chapter differs, for example, Chapter 6 uses a numbered referencing format. As each chapter was written as a stand-alone publication, factors such as content repetition disrupt the chapter to chapter flow. Additionally, each paper has its own abstract, introduction, theory, methods, results, discussion, conclusion and reference list. For this reason, the literature review included in the introduction is a high-level 'scene-setting' review only, with each chapter considering more detailed and specific literatures as necessary. A complete and consolidated reference list, excluding supplementary references from appendices, is included at the end of the thesis.

Two of the publications included as chapters in this thesis were co-authored, and this is indicated in the chapter title pages of Chapters 4 and 5. Only papers for which the author of this thesis made a major contribution (at least 50%) are included in the thesis. Attribution statements for the two co-authored publications are included in Appendix 3. The attribution statements detail individual contributions, and are signed by all authors of each publication.

#### 1.4.1 Procedural issues

The research for this thesis was approved by the Humanities and Social Sciences Delegated Ethics Review Committee at the Australian National University. The ethics approval is dated 16th July 2015, and has protocol number 2015/423.

The interviews for this research were all conducted in English. As English is the regional language of Southeast Asia, all the officials and NGO personnel interviewed spoke English fluently. As all interviewees spoke English fluently, this choice had no implications for the research. For these reasons, the expense and complications of using an interpreter were not considered necessary.

#### 1.5 Content

In order to answer the research questions detailed in Table 1.1, firstly the governance of health and adaptation at the national level in Cambodia, Myanmar and Vietnam were examined in-depth. In each case, the governance structures and arrangements, as well as the vertical and horizontal interplay between different parts of those structures, were considered. This was the foundational component of the research and was used to determine the major national level governance issues relating to health and adaptation to climate change in Southeast Asia. For this reason, this phase of the research was based on themes that emerged from the interview data, which were then triangulated with the literature as well as on-the-ground research and policy documents.

Secondly, in Part C of the thesis, FAROCCCA was developed and tested. The framework was developed because a structured approach was necessary for assessing RO support for national level adaptation and health, and there was a lack of existing frameworks suitable for this assessment. Developing FAROCCCA in a different geographic, and non-sector-specific, context was a deliberate choice that ensured the resulting framework did not contain context-specific weaknesses. Thirdly, in Part D of the thesis, the framework was modified and applied to the Southeast Asian health context, in order to address the overall research question.

#### 1.5.1 Literature review

As noted in section 1.4, each of the core chapters of this thesis (Chapters 2-6) contains its own theory and methods sections. For this reason only a broad overview of the literature on which the research was based is included here. The literature reviewed here contextualises this research into the effectiveness of RO support for adaptation and health, and covers the following areas:

- Health and adaptation
- The role of global institutions in adaptation and health
- Climate change and health in Southeast Asia
- Regional organisations and organisational effectiveness
- Regional organisations influencing national policy processes
- National level climate change adaptation
- Coordinating climate change adaptation
- Decentralisation: coordination at the sub-national scale

As mentioned previously, further detail, including reviews of geographic specific literatures, is provided within individual chapters. Also, because this is a thesis by compilation, there is some overlap between this overview of the literature and the literature reviews within the individual chapters.

#### 1.5.1.1 Health and adaptation

At the global scale, health and climate change is gaining increasing attention with, for example, the IPCC confirming that changes in precipitation patterns (e.g. droughts and floods) and temperatures (e.g. heatwaves) will have direct impacts on human health (Smith *et al.* 2014). Aside from direct impacts, such as drowning, heatstroke, and dehydration, there will also be indirect impacts via, for example, changes in the prevalence and distribution of infectious diseases including vector- and water-borne diseases, as well as through water and food security challenges (WHO 2015a). Figure 1.3, below, describes the main drivers and exposures that lead to climate-related health impacts, as well as identifying points at which adaptation measures could ameliorate those impacts. Of interest in Southeast Asia is that climate-related health impacts are likely to be largest in countries where infrastructure is poor, and where there are high levels of poverty and inequality (Lesnikowski *et al.* 2013, see also Marmot 2007 for arguments about climate change further disadvantaging poor and marginalised populations).

Despite, or indeed because of, expected health impacts, climate change has also been argued to be the greatest health opportunity of the 21<sup>st</sup> century (Watts *et al.* 2015a), as it could be the basis for better resourcing of health sectors, in financial, human and regulatory terms. Better resourcing for health sectors would be an adaptive action, as healthier people are

inherently better able to cope with climate-related shocks and challenges (e.g. Smyle 2014). Adaptation-related opportunities for global health include the possibility of building stronger awareness among lay people around public health issues such as risks associated with water-borne diseases, and improving early warning capacities focussed on health (WHO 2016). Both awareness raising about public health and early warning improvements constitute no-regrets options (e.g. Hallegatte 2009), by improving health outcomes regardless of the magnitude of climate change impacts, although Amundsen *et al.* (2010: 286) argued that awareness raising about climate change, on its own, does "not readily translate into action".

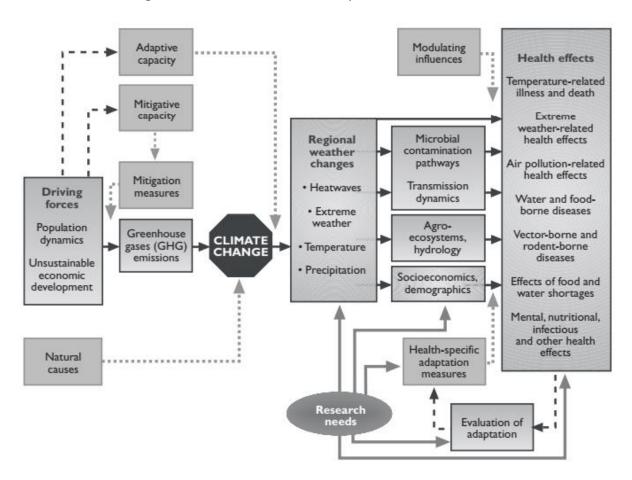


Figure 1.3: Overall climate and health linkages (Source: (McMichael et al. 2003))

Public health, as defined by the World Health Organization (WHO), means "improving health, prolonging life and improving the quality of life among whole populations through health promotion, disease prevention and other forms of health intervention", but also recognising the strong links that health status has with lifestyles and living conditions such that public health should seek to create "supportive environments for health" (WHO 1998: 3). Both CCA and public health are largely future (i.e. preventive) focussed, so it is unsurprising that adaptation and health and public health literatures both include arguments for health

authorities to act on health determinants (e.g. McDaid and Suhrcke 2012, Watts *et al.* 2015b). These arguments include promoting the idea that health authorities fill guidance and coordination roles in health determining sectors, which could also strengthen health system resilience to climate change.

Despite the substantial literature on health and climate change, there is limited literature on public health interventions relating to climate change. This has led a number of researchers and institutions to develop assessment frameworks for assessing climate change impacts on health and for prioritising resilience building interventions (see e.g. Hess *et al.* 2014b, Marinucci *et al.* 2014). One of the difficulties faced in incorporating climate considerations into health research is an existing emphasis on randomised controlled trial (RCT) methodologies, which do not necessarily suit domains that consider environmental determinants of health (Bouzid *et al.* 2013). Even where the evidence is clear it can be difficult to translate into policy (e.g. Ward *et al.* 2009), and this problem is magnified where RCTs cannot be suitably employed. There are both direct and indirect climate-related impacts on human health, and while the importance of focussing on health determinants should not be underrated, developing evidence to inform policy is complex.

#### 1.5.1.2 The role of the global institutions in climate change adaptation and health

Climate change is a global problem, which is anthropogenic in nature. This was first globally recognised with the adoption of the UNFCCC in 1992 (UNFCCC 1992). Since 1992, the evidence of human interference in the climate system has strengthened considerably, as reflected in successive reports by the IPCC. For example, the Second Assessment Report (SAR) of the IPCC observed that,

The balance of evidence, from changes in global mean surface air temperature and from changes in geographical, seasonal and vertical patterns of atmospheric temperature, suggests a discernible human influence on global climate (IPCC 1995: 5).

However, by 2014 the suggestion of a discernible human influence had changed to,

Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate

changes have had widespread impacts on human and natural systems (IPCC 2014c: 2).

Despite the increasing level of certainty, as well as observed impacts of climate change, efforts to curb greenhouse gas emissions have thus far been insufficient. Thus, the 2015 Paris Agreement focusses on both mitigation and adaptation, "[t]he Paris Agreement's central aim is to strengthen the global response to the threat of climate change" by limiting global temperature increases, and in addition "the agreement aims to strengthen the ability of countries to deal with the impacts of climate change" (UNFCCC 2017, online).

The additional focus on adaptation is also visible in, for example, the Nairobi Work Programme, which in 2016 held its 10<sup>th</sup> focal point forum focussing on adaptation and health (UNFCCC 2016). This forum addressed four key climate-related health issues: 1) changing disease distribution, 2) new and emerging diseases, 3) malnutrition, disaster impacts, waterand vector-borne diseases, and 4) climate change impacts on workplace productivity. Other global health institutions such as the World Health Assembly (WHA) are also prioritising adaptation and health. For example, in 2013, the WHA published a resolution that noted "a new operational framework for health protection from climate change in the South-East Asia Region" (WHA 2013: 1). The anthropogenic causes of climate change compel a human response, however the tardiness of that response has led to the situation where people, societies, countries and the world as a whole must adapt to a changing environment, including adapting to the impacts of environmental change on human health.

#### 1.5.1.3 Climate change and health in Southeast Asia

Similar to global trends, the IPCC Fifth Assessment Report (AR5) observed that mean temperatures in Southeast Asia have risen around one degree Celsius since the 1960s, with increasing numbers of hot days and warm nights (Hijioka *et al.* 2014). Combined with temperature increases, rainfall patterns are changing, with more rain falling during monsoons and less rain during dry seasons. Extreme weather events are more complex, with northern parts of Southeast Asia experiencing an increasing frequency of events while other parts of Southeast Asia show declining trends. According to climate projections in AR5, rainfall extremes during monsoons will continue to increase in Southeast Asia.

These physical impacts in Southeast Asia link to human vulnerability to climate change because of a high (and rapidly growing) population combined with a reliance on agriculture for livelihoods (ADB 2009). Related to the reliance on agriculture, a high proportion of Southeast Asia's population live in rural areas, and are thus more predisposed to be negatively affected by climate change impacts. For example, McElwee (2010) described four million people living in poverty in the predominantly rural Mekong Delta, who do not have health safety nets and whose children have high drop-out rates from school. This exacerbates inter-generational climate-related vulnerability, as the children of today's poor will remain less well educated and in poorer health than children from wealthier backgrounds. As examples of climate-sensitive health risks, rainfall and temperature peaks have been observed to correlate with increases in numbers of dengue and diarrhoeal disease cases (e.g. Hsieh and Chen 2009, Phung et al. 2015). Peaks in diarrhoeal diseases are also associated with droughts, where people drink contaminated water because they lack access to clean water. Thus, both wetter monsoons and dryer dry seasons are cause for direct disease-related health concerns, as well as indirect food- and nutrition-related health concerns. Vector- and waterborne diseases, as well as health impacts associated with extreme weather events feature broadly in national level Southeast Asian climate change and health documentation (e.g. MoH 2010, MOECAF 2012, Climate Change Technical Working Group for Health 2014).

#### 1.5.1.4 Regional organisations and organisational effectiveness

With the increasing recognition of the importance and urgency of adapting to climate change, it is unsurprising that ROs are playing an increasingly important role in supporting national level CCA (e.g. Robinson and Gilfillan 2017). In addition to non-sector-specific CCA, adaptation and health is also an area that ROs are supporting. For example, the Caribbean Community Climate Change Centre (CCCCC) specifies that it has expertise in facilitating community projects in "Health, Tourism, Agriculture, and Renewable Energy" (CCCCC 2017: online), and in the Pacific, the Secretariat of the Pacific Community (SPC) has supported regional symposiums on climate change and health (Hoy *et al.* 2014). In other examples adaptation and health is written into organisational strategic documents. The ADB has committed to supporting member states to adapt to the health impacts of climate change (ADB 2008), and the APRF encourages national governments to address the health implications of climate change (RFEH 2007). Despite these examples of ROs supporting work on climate change and

health, there is scant literature on the effectiveness of ROs supporting climate change adaptation and adaptation and health. Wahlqvist *et al.* (2012) considered the role of ROs in ensuring food security under climate change conditions in Asia, and (Thomson *et al.* 2014) followed the work of an RO supporting climate and health services in Africa, however neither paper explicitly assesses RO effectiveness. The research in this thesis fits into this gap in knowledge on the role and effectiveness of ROs supporting national level adaptation and health.

Measuring the effectiveness of RO support for adaptation and health required a review of methods and methodologies for assessing organisational effectiveness. Indicators of organisational effectiveness can be split between objective indicators, which are analogous to quantitative data, and perceptual indicators, which rely on insights from individuals with intimate knowledge of factors such as how inter-personal relationships within the organisation influence the effectiveness of organisational structures and processes (e.g. Cameron 1980). Perceptual indicators support measurement of process and legitimacy-related aspects of organisational effectiveness such as transparency, inclusiveness (Heard-Lauréote 2010), as well as organisational leadership (e.g. Larsson and Vinberg 2010). Data to assess against objective indicators can be sourced from organisational plans and evaluations, as well as independent evaluations and publicly available data on qualifications and expertise of staff assigned to particular areas. These two different styles of indicators are used across the four basic models that have been used as the base for measuring organisational effectiveness. These four models are the:

- strategic constituency model, which examines linkages between an organisation and its main stakeholders (e.g. Connolly *et al.* 1980),
- goal oriented model, which asks whether the organisation is achieving its immediate and strategic objectives (e.g. Button *et al.* 1996),
- resource oriented model, which considers organisations' resourcing, as well as ability to acquire resources (e.g. Wolfe and Putler 2002), and
- process driven model, which focusses on effective and efficient use of organisational resources (e.g. Daft 2015).

In this thesis, elements from each of these were drawn together to develop a framework suitable for applying in a CCA context. More detail regarding the measurement of organisational effectiveness is presented in Chapter 5, however the complexity of measuring organisational effectiveness is apparent in both the variety of literatures in which the issues are debated, as well as the number of approaches detailed in the literature.

#### 1.5.1.5 Regional organisations influencing national policy processes

Because ROs are located above national governments, they provide a useful forum outside of national constraints that can be used for framing debates and agendas on topics including regional integration, social policy priorities and the best roles for national, regional and international institutions in both policy development and implementation (Riggirozzi 2015b, Riggirozzi and Yeates 2015). They are able to frame these debates and agendas, and gain acceptance in national level policy making institutions, because they can facilitate transboundary policy discussions, channel resources from international donor organisations and help amplify the voices of small countries in international diplomacy (Yeates 2014, Riggirozzi 2015b). For example, particularly in regions where health systems remain weak, ROs have influenced national policy and practice by focussing on transboundary health security through support for surveillance and epidemiological controls (Riggirozzi 2015a). Transboundary health security and CCA are linked because climate sensitive diseases such as malaria and dengue can cross national boundaries and negatively impact economic growth (see e.g. ADB 2017a). Economic growth is an area that ROs have tended to focus on by, for example, fostering economic development through measures such as supporting the standardisation of trade and customs processes, addressing non-financial trade barriers and championing the elimination of intra-regional tariffs (e.g. ASEAN Secretariat 2015). ROs can also deliver benefits in terms of burden sharing, reductions in transaction costs through economies of scale, particularly for managing knowledge-based and financial resources (Beattie 2013, Dornan and Newton Cain 2014). Finally, ROs provide a means for introducing new ideas and concepts into national policy processes, by expanding policy perspectives and horizons (Riggirozzi 2015b).

Despite the range of entry points for ROs to engage with and influence national policy processes, they are not always effective in achieving sustainable change. For example, Das

(2017) identified that many regional measures included in the ASEAN Economic Community blueprint (2008) remained incomplete by 2015 because of conflicts of interest between firms and/or government agencies. Similarly, Nathan and Shaw (2016) observed that the Southern African Development Community did not live up to expectations in the 1990s that it would build a security community in southern Africa. They argued that the failure lay in a lack of common values across the nations involved, as well as weak state structures that underlay an unwillingness to cede authority to the regional level. ROs have a variety of characteristics that support their involvement in national policy processes, however there are significant complexities that can undermine the ability of ROs to capitalize on these characteristics.

#### 1.5.1.6 National level climate change adaptation

Adaptation plans and strategies are being developed at the national level around the world. For example, Biesbroek *et al.* (2010) reviewed seven national adaptation strategies in Europe, looking at factors including motivations for development, implementation through multiple layers of governance, and coordination across policy domains. In a related study that reviewed the fifth national communications of 38 Annex I parties to the UNFCCC, Lesnikowski *et al.* (2011) found no health vulnerabilities common across all parties and noted poorly defined linkages between research and policy outputs. In a single country study, de Bruin et al. (2009) identified 96 adaptation options available in Holland, based on literature surveys and stakeholder workshops, and evaluated them against criteria such as importance, no-regret characteristics, co-benefits and urgency. These examples from Europe highlight the increasing recognition in the literature of adapting to climate change, including for human health.

In an example of national level climate change policy development, Vietnam published its National Target Program to Respond to Climate Change (NTP-RCC) in 2008 (GOV 2008), and three years later published their National Climate Change Strategy (GOV 2011). The target program and national strategy both identify adaptation and health as well as cross-sectoral coordination as areas of concern. Policies by themselves, however, do not necessarily mean that planned adaptation will occur, and Lesnikowski *et al.* (2013) focussed on adaptation and health to explore those factors which facilitate or constrain national level adaptation to climate change. The factors examined included international environmental governance

engagement, national level environmental governance, national wealth, and national responsiveness to health-related vulnerabilities. While acknowledging the influence of national wealth, Lesnikowski *et al.* (2013) argued that without policy commitments to environmental governance, wealth is insufficient to effectively respond to the health impacts of climate change. However in Vietnam, for example, there is an observed divide between policy development and on-the-ground reality (e.g. MacLean 2013), which can also reduce the effectiveness and implementation of national level policy commitments. Thus, support for national level adaptation to climate change, including health-related adaptation, must take specific contexts, circumstances and governance arrangements into account.

#### 1.5.1.7 Coordinating climate change adaptation

Coordination between sectors is a vital consideration for climate change adaptation. For example, Pittock (2010) questions the coordination and integration of freshwater eco-system management with climate change adaptation and mitigation policies and strategies. He identified a number of coordination mechanisms, such as the Joint Work Plan between the Ramsar Convention for conservation and protection of wetlands, and the Convention on Biological Diversity. While this Joint Work Plan supported integration and collaboration between two global environmental treaties, he argued that successful mechanisms are few and far between.

The terms coordination, coherence and integration are often used synonymously in the literature (e.g. Peters 2015), however there are some distinctive features of these terms, which also differentiate them from nexus approaches. To clarify, a brief explanation of these terms is provided to highlight the conceptual differences between coordination and the others. Integration aims to incorporate climate change into all stages and of policy making across sectors (Mickwitz *et al.* 2009), whereas coherence focusses on the actions that result from policy, systematically promoting mutual reinforcement between those actions, and, at the policy level, this promotion comes via non-conflicting incentives and signals targeting specific groups (Jones 2002, Mickwitz *et al.* 2009). The term nexus is used in conjunction with both coherence and integration, and is most commonly used to refer to the links between energy, food and water (e.g. Rasul and Sharma 2016). In the way that it is defined for the purpose of this thesis coordination differs through consideration of interactions between actors, and consideration of how structures within and outside of government affect policy

processes and policy implementation. The importance of structures can be seen in the example of difficulties that Vietnamese provincial governments face in working together to address cross-boundary issues. Even with integrated and coherent policies, inter-provincial interaction is undermined by a government structure that excludes formal mechanisms to support coordination between the provinces (Gilfillan *et al.* 2017).

As discussed later in this thesis, coordination incurs monetary and resource expenses as well as consuming time and manpower. Coordination requires and understanding of contextual institutional cultures in order to create appropriate incentives within them (e.g. Resurreccion et al. 2008). But incentives for coordination are not sufficient of themselves. Structures, such as a national body to ensure the work of decentralised governments helps achieve national development priorities, are also necessary (Saito 2011, see also Agrawala and Van Aalst 2008). A body such as this requires people to staff it, requiring either additional staffing budgets, or for people to be re-tasked from other work. Therefore coordination requires a trade-off with alternative investment options. Because of the complexities of coordinating across scales, sectors and boundaries (e.g. Andonova et al. 2009, Peters 2015, Gilfillan et al. 2017), the return on investing in coordination is likely to occur on a longer time scale than many alternative investment options. Despite this, coordination is seen as a vital issue academically and for practice of good governance. For example, Peters (2015: 3) observed that both academics and practitioners have argued that "adequate coordination and coherence" would solve many policy problems. As an example, Bryson et al. (2015) argued that agencies should work together when there are opportunities to achieve things that they could not achieve alone, such as in the realm of combatting poverty. The coordination payoff in climate change adaptation comes because, for example, responses must take into account other sectors, other scales and other places in order to avoid counter-productive efforts and maladaptation.

Coordination can either be functionally mandated, as per ministerial mandates for particular responsibilities, or it can be a collaborative effort of two or parties working together to achieve common goals (Gilfillan *et al.* 2017). Functional coordination can work well where tasks are easily separated into different responsibilities. For example, one ministry may be responsible for assessing the technical merits of an adaptation proposal, while another ministry is responsible for prioritising funding, in line with national strategies, among projects

that have passed technical screenings. However, in more complicated situations, such as for adaptation issues that span mandates or scales, a collaborative approach is likely to be more successful. For example, disaster management and development planning sectors focus on different time-scales, and without collaboration and a common understanding of each other's goals and objectives, these two closely related sectors have a high likelihood of working at cross-purposes (see e.g. Adger *et al.* 2009).

In India, Dasgupta *et al.* (2016) found that poor coordination impacts on health sector adaptation and disaster management, and further noted a lack of linkages between state level climate change planning and existing state level health policies and programs. Dasgupta *et al.* (2016) argued that health should be a key component in Indian state-level climate change planning. For example they argued that access routes to health facilities should be better mapped in a coordinated effort between remote sensing authorities and health authorities, with prioritisation according to climate change vulnerability as assessed by a national government disease surveillance project. The importance of cross-sectoral coordination can also be observed in the work of Lesnikowski *et al.* (2013), who considered adaptation to health vulnerabilities, rather than adaptation in the health sector, in order to pick up on determinants of health. More concrete examples are provided by Cash *et al.* (2013), who describe elevated cyclone shelters reducing injuries and deaths during extreme weather events, and Pittock and Xu (2011), who observed livelihood benefits resulting from cross-sectoral adaptation, through environmental restoration, on the Yangtze River floodplain.

In addition to cross-sectoral coordination issues, a lower level of government not being granted authority to penalise non-compliance with adaptation policies is an example of poor cross-scale coordination (e.g. Carlsson-Kanyama et al. 2013). A lack of common understandings between different levels of government, which may result from factors such as different priorities or different levels of awareness and understanding of climate change impacts and their implications, can also hamper adaptation responses (e.g. Gilfillan *et al.* 2017). A third dimension of coordination that links to adaptation is coordination across subnational boundaries. Cross-boundary coordination should be strengthened to reduce and avoid development and planning conflicts between local jurisdictions (Baker *et al.* 2012), and to support long-term prosperity and sustainable development (e.g. Truong 2011).

Despite the recognised importance of coordination to improve adaptation, there is a need for funded structures and incentive mechanisms (e.g. Resurreccion *et al.* 2008, Saito 2011). However, competing development priorities as well as more urgent concerns, such as dealing with extreme weather events, limit the funding and attention paid to issues of coordination, thus weakening efforts to achieve coordinated responses. Carr and Hawkins (2013) argued however, that despite the costs involved, coordination benefits include possible increases in scale of operations, reductions in the number of redundant activities as well as improved accountability. Coordination for CCA, including for health, is a major issue that needs to be addressed. However, effective coordination requires not only structures, but also the establishment of clear goals and targets that include time-frames and reporting criteria in order to incentivise coordinated responses.

#### 1.5.1.8 Decentralisation: coordination at the sub-national scale

Decentralisation is a process of devolving administrative, political and fiscal responsibilities from national to sub-national levels (Dressler *et al.* 2010). The main rationale for decentralising decision-making is that locally-based decisions should better take into account local circumstances and conditions than decisions made by, for example, a national government (e.g. Fisman and Gatti 2002, Saito 2011, Faguet 2014). This approach is also argued to result in subsidiarity, which is the gain in efficiency that should result from local decision-makers' more intimate and detailed understandings of service delivery options and constraints in a particular jurisdiction (e.g. Oates 2006, Falleti 2010). Despite these apparent advantages, putting decentralisation ideals into practice is argued to be challenging because of factors such as proximity not necessarily resulting in better awareness or cost-benefit analyses. Another concern is the cost of coordinating across scales and between local government areas with Saito (2011), for example, arguing that coordinating the activities of local government requires specialised national institutions.

Within the literature there is recognition of both bottom-up and top-down decentralisation. The top-down approach considers which governance aspects are inappropriate for higher-levels and devolves them to lower levels, whereas the bottom-up approach focusses on the capabilities of lower levels of government, requiring higher levels to take responsibility for those aspects for which lower levels do not have the skills, resources or experience (Vu 2012).

Decentralisation programs can cause tensions as national governments work to empower and upskill governments at sub-national levels, while also seeking to maintain centralised policy control. These empowerment/control tensions can also impact on local participation and ownership of CCA responses (Garschagen 2016, Christoplos *et al.* 2017), which are widely viewed as key components for successful adaptation (Ebi and Semenza 2008, IPCC 2014c). While decentralisation is meant to deliver substantial benefits for local communities, there are numerous confounding issues such as coordination costs and push-pull tensions which can impede effective implementation of decentralisation ideals.

Lower levels of government not having skills, expertise or experience for certain governance aspects highlights a central international development concern: capacity development. The literature on capacity and capacity development includes four distinct contextual arenas. These are: 1) financial and resourcing capacity (Dany et al. 2015), 2) human resource capacity, skills and understanding (Willems and Baumert 2003, Bowen et al. 2015, Dany et al. 2015), 3) capacity to coordinate, manage and make decisions (Willems and Baumert 2003, Bowen et al. 2015, Dany et al. 2015), and 4) Regulatory capacity, including systems and information management (Willems and Baumert 2003, Dany et al. 2015). Despite this, capacity development remains an elusive concept; capacity development can focus on individuals or on organisations, it can be considered as either an aim, or a means to an end, and occasionally refers to provision of tools such as computers (Ubels et al. 2010). In this context, the definition of capacity development is "the process through which individuals, organizations and societies obtain, strengthen and maintain the capabilities to set and achieve their own development objectives over time" (UNDP 2009: 5). However, while capacity development is widely understood as a central component of international development work (Ubels et al. 2010), capacity development practitioners and those on whose behalf they intervene can have conflicting values and value systems, with issues arising as a result likely to be magnified because of unequal voices between the two groups (Tandon 2010). Thus, for capacity development efforts to be effective requires a sensitivity to local contexts, power relationships and for underlying assumptions to be clearly articulated.

# 1.6 Organisation of the thesis

The five core chapters of the thesis, which are also publications, are separated into three parts (Parts B – D). At the beginning of each of these parts is a short explanatory section that briefly outlines the issues examined and details the links with other parts of the thesis, extending the information contained in Table 1.1 and Figure 1.2. As mentioned previously, a copy of Figure 1.2 is included at the beginning of each chapter, with highlighting that indicates the reader's current location within the thesis. The final part of the thesis, Part E, is the conclusion. This section of the thesis describes the purpose and content of each part within it.

Before going any further, though, it is worth outlining the perspective from which the research was undertaken. The author's conceptual standpoint is that while adaptation governance results are important, the processes involved in achieving these results are crucial. The author holds the view that national and local ownership of CCA actions is a vital component of ensuring resilience and sustainability of interventions because, for example, involvement of local people is more likely to lead to appropriately targeted interventions (Picketts *et al.* 2014), as well as links between stronger local ownership and adaptation effectiveness (Ebi and Semenza 2008). The theoretical framings of each of the chapters in this paper vary to reflect the circumstances and contexts of the research, however each frame is developed from this common ontology.

Part B of the thesis comprises three national case-studies. The overarching goal of each of the national case studies was to determine national level health and adaptation governance challenges and opportunities. Chapter 2 examines cross-sectoral coordination issues as well as human resource limitations that affect cross-scale coordination related to health and adaptation. The basis of this research was an understanding that a national government is part of a networked system that includes non-government organisations (NGOs), international NGOs (INGOs), community groups as well as different government sectors and scales. The Anglo-governance school, which views national governments as holding limited power, and therefore governing in conjunction with a variety of other actors (Bevir 2009), and modern organisation theory, which values collaborative efforts between systems, processes and individuals (Hicks and Gullet 1975), both provided insights into the interactions

between the different actors in this network. This aspect of the research was contextualised within the literature that discusses health and adaptation, capacity and coordination as well as national policies, strategies and plans relevant to health and adaptation. The goal of the research was to explore governance-related challenges to adaptation and health as well as possibilities for these to be overcome.

Having identified the main governance-related adaptation challenges and opportunities in Cambodia, the next step was to explore two other national case-studies, to identify similarities and differences that challenge and support health and adaptation across Southeast Asia. Chapter 3 explored the role of Myanmar's health ministry in adaptation governance, with particular emphasis on disaster management and response. The situation in Myanmar is complex and fluid as the country is still in a process of transition to civilian democratic governance. For this reason, systems-based approaches, which focus on mechanisms and structures for communication and control (Esmark 2011), were inappropriate. Resilience thinking, which focusses on organisation or system changes that enable adaptation to a continuously changing environment, was used as an alternative (Folke et al. 2010). This choice supported a recognition of the health ministry as a powerful governance actor in Myanmar, despite the health sector being weak and under-resourced compared to other countries in Southeast Asia (e.g. Htet et al. 2014). Themes that emerged from the interview data were triangulated with literature on decentralisation, cross-sectoral coordination, and health and adaptation, as well as with policy documents relating to health, adaptation and disaster management, and on-the-ground research.

Chapter 4 of the thesis used the Mekong Delta provinces of Vietnam as a case-study to examine national and sub-national policies and plans related to adaptation and health, and constraining factors inhibiting planned adaptation for health in the delta. Vietnam has an established bureaucracy and the research was based on systems theory (see Esmark 2011) in conjunction with resilience thinking (Folke *et al.* 2010). Systems theory enabled an exploration of the interplay between decentralisation and CCA, while resilience thinking supported debating possibilities to address coordination issues for health and adaptation that do not fit with current norms in Vietnam. The research in Vietnam highlighted three separate aspects of coordination that should be addressed in order to improve adaptation and health: cross-sectoral coordination, cross-scale coordination and cross-boundary coordination,

particularly between provinces. Similar to the research conducted in both Cambodia and Myanmar, themes emerging from the interview and policy data formed the basis for this research. Interview data gathered was triangulated with on-the-ground research, as well as with literature on health and climate change and literature on adaptation and coordination across sectors, boundaries and scales.

A review of relevant literatures highlighted a lack of a suitable sector- or non-sector-specific assessment framework for RO support to national level adaptation. Therefore, in order to systematically evaluate ROs supporting national level health and adaptation initiatives in Southeast Asia, FAROCCCA was developed. Chapter 5 of the thesis explores regional contributions to national adaptation to climate change outside of the health sector and outside of the Southeast Asian context. FAROCCCA consists of three components, 18 subcomponents and 62 indicators. It was designed to assess whether ROs have appropriate resourcing and design frameworks to deliver on CCA objectives, whether CCA projects or initiatives are effectively implemented, and whether organisational CCA goals are being achieved. The research to develop and test FAROCCCA was informed by the network approach of modern organisation theory (Scott 1961), highlighting the complex interactions between organisational variables, and also using elements of neo-functionalism, which recognises organisations such as RO secretariats as being independent of the member states that initially established the RO (Schmitter 2003). FAROCCCA itself, was built on the work of authors across a variety of disciplines who have developed evaluation mechanisms and indicators for organisational effectiveness.

The final core chapter of this thesis is Chapter 6, in which FAROCCCA was modified for use in a Southeast Asian health context. Two models of support to national level health and adaptation were assessed in this chapter. First was a project-based model, similar to the styles of support assessed in Chapter 5. The second model was a governance-based intergovernmental initiative promoting climate change and health. The modifications to FAROCCA therefore focussed on ensuring that indicators referred to CCA and health, as well as to allow for an intergovernmental meeting to be assessed as an organisation. The research into ROs supporting national level health and adaptation was primarily shaped by modern organisation theory (Scott 1961), as a means of identifying the major parts, or actors, and processes that influence CCA and health in Southeast Asia. Modern organisation theory was

supplemented by resilience thinking (Folke *et al.* 2010), enhancing understandings of the influence of dynamic environments external to the organisations being assessed, and supporting system changes without undermining organisational identity. The comparison of two regional models of support for health and adaptation was based primarily on data gathered through the modified FAROCCCA, with this data triangulated with academic and grey literature as well as on-the-ground research and policy documents.

The final section of the thesis draws together the preceding chapters to highlight the main lessons learnt, including explicit consideration of the questions presented in Table 1.1.

# 1.7 Definitions

Many of the terms used in this thesis are used to mean different things in different disciplines and by different authors. For this reason, some common terms with their meanings for the purposes of this thesis are included below.

<u>Adaptation</u>, as previously defined, refers to adjustments made to either expected or observed climate impacts. It can either seek to take advantage of climate-related opportunities, or to minimise harm associated with climate change (IPCC 2014a), and can be either planned (e.g. each of Vietnam's provinces has an adaptation plan of action) or autonomous (e.g. a farmer responding to observed erratic rainfalls in Myanmar's dry-zone). Adaptation can focus on different scales (e.g local, sub-national, national, regional), and as noted, can either be incremental (maintaining existing structures and systems) or transformative (altering fundamental system attributes to better respond to climate impacts) (Biagini *et al.* 2014, IPCC 2014a).

<u>Adaptation constraints</u> are those factors that make it more difficult for a system or society to adapt to climate change (IPCC 2014a).

<u>Adaptation and health</u> is used in this thesis to refer to health sector-related climate change adaptation. Because of the importance of health determinants, adaptation and health is a broader category than climate change adaptation that happens within the health sector itself.

When an <u>adaptation limit</u> is reached, it means there are no longer adaptive actions available that can prevent intolerable risks to a particular system. These can either be soft or hard limits (IPCC 2014a). Hard limits are fixed, such as the physiological capacity of organisms to adjust

and adapt. Soft limits are those where options may become available in the future, for example, a current lack of information may lead to decision-makers deferring decisions regarding climate responses (e.g. Morgan 2011).

It is worth noting that the definition for adaptation and its constraints and limits imply that adaptation is not only a technical response to climate change, but rather incorporates a variety of political, social and organisational elements. This is highlighted by Javeline (2014), who argued that the most urgent adaptation in human systems relates more to inter-domain interactions than to the scientific and technical aspects of adaptation.

<u>Coordination</u>, within the governance and policy realm, is a conceptually simple. Hall *et al.* (1977: 459) defined it as "the extent to which organizations attempt to ensure that their activities take into account those of other organizations". For the purposes of governance, organisations also include government agencies, civil society organisations and other groups involved with decision- and policy-making as well as implementation.

<u>Governance</u> is a contested concept, with Gisselquist (2012) arguing that there are three essential components in commonly used definitions: processes, exercising of authority, and management of collective affairs for a community, society or nation. The process-based underpinnings of this thesis led to an examination of the main governance actors at each of the transnational, national and sub-national scales. For example, for the two chapters in this thesis focusing on ROs, governance refers primarily to the relationships and interactions between ROs and national governments, as well as between ROs operating in the same region. In contrast, for the three chapters focusing on national to sub-national scales, governance refers largely to interactions between national and sub-national governments as well as between government sectors and agencies, such as health and environment sectors.

<u>Resilience</u> is the ability to respond to shocks in a manner which allows for core functions, identities and structures to be maintained (IPCC 2014a). In other words, resilience is a system's "capacity to change [some elements] in order to maintain the same identity" (Folke *et al.* 2010: 19).

<u>Supra-national</u> refers to influence that transcends national boundaries (Holman 2007, Uwazuruike and Salter 2017).

<u>Sustainability</u> is linked to resilience, and is a dynamic process leading to persistence of human and natural systems. Sustainability also incorporates equity ideals (IPCC 2014a).

<u>Sustainable development</u> links with sustainability but focusses on inter-generational equity. Thus, it refers to development that meets today's needs without infringing on future generations' ability to meet their needs (IPCC 2014a).

<u>Uncertainty</u> relates to lack of availability, or contestation, of information. It can be quantitative (e.g. imprecise data) or qualitative (e.g. a statement by a group of experts) (IPCC 2014a).

<u>Vulnerability</u> is a measure of propensity to be negatively affected (IPCC 2014a). It is a function of both exposure to impacts and ability of affected populations to adjust and adapt (Yusuf and Francisco 2009).

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# Part B: National Level Adaptation and Health Governance in Southeast Asia

Part B of the thesis presents three national level case-studies of CCA and health in Southeast Asia. In each case interviewees were asked about several adaptation governance issues including the involvement of civil society and NGOs in health and adaptation, the decision-making chains that lead (or fail to lead) to on-the-ground adaptation, adaptation funding for health, and the influence of supra-national organisations. By examining adaptation and health across three countries, regional similarities and differences in health and adaptation governance in Southeast Asia were ascertained. Chapter 2 examined governance limits to adaptation and health in Cambodia. Chapter 3 investigated the role of the health ministry in Myanmar's adaptation and disaster management governance. Chapter 4 examined inter-play across scales, sectors and provincial boundaries and the impact of this on health and adaptation in Vietnam.

# Chapter 2: Governance Limits to Adaptation in Cambodia's Health Sector

# Introduction to Chapter 2

Chapter 2 of this thesis addresses the following research questions.

- Are there governance obstacles that are limiting adaptation and health in Cambodia?
- What does the future for health and adaptation in Cambodia look like?

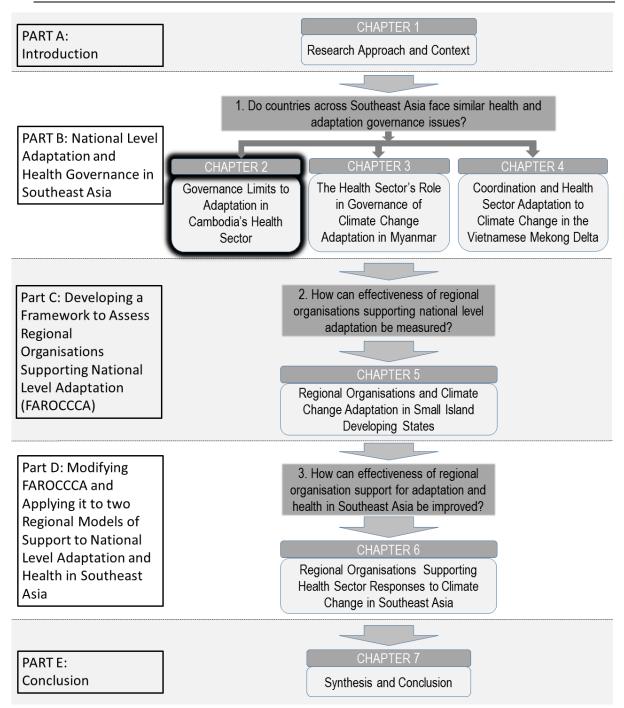


Figure 2.1: Thesis Process Diagram (highlighted chapter indicates current location in thesis)

Chapter 2 analysed adaptation and health governance opportunities and constraints. It was based on interview data that was triangulated with policy analysis and on-the-ground research, and identified coordination across sectors and human resource capacity challenges, which impact on cross-scale coordination, as the primary governance limits to adaptation and health in Cambodia. This was the first of three chapters used to determine the regional similarities and differences around adaptation and health governance issues.

Chapter 2 is the first substantive chapter of the thesis. It was written as a standalone publication, and was used by the author to explore a variety of ideas that link adaptation and health to national development. Some of these ideas are not fully formed or articulated (for example, the 2nd, 3rd and 4th paragraphs in section 2.6.1), however they are included to show the development of the author's thinking and analysis over the course of the research. Additionally, as noted in the thesis introduction, the research in each of the case-study chapters, as well as the thinking behind them, fed into the subsequent case-studies.

The research approach for this chapter focussed on networks, both within and outside of government, and the influence of different network actors on the two limits identified (Hicks and Gullet 1975, Bevir 2009). Despite a quarter of a century of stable government in Cambodia, the country remains on the United Nations' list of least developed countries (LDCs) (UNDESA 2015), the public education system depends heavily on private tutors to supplement what is taught in schools (Brehm and Silova 2014), and until recently the government has shown little interest in coordinating sustainable development across sectors.

There are some early signs that the Cambodian government is starting to take cross-sectoral coordination seriously, by funding a National Council for Sustainable Development (NCSD) that is designed to have both technical and political levels within it. However this initiative warrants more observation and research; despite a funded structure (the council) for coordination, to date there is a lack of evidence that coordination is being incentivised. Analysis in this chapter also reveals that for different reasons, neither the government nor the international aid sector focus on capacity development. A perception within government that it must provide immediate and tangible benefits (e.g. material items) to retain voter loyalty undermines investments in human capital. For the aid sector, difficulty in reporting to donors on capacity development and linkages to particular interventions often leads to a focus on tangible outputs, such as the number of participants attending training activities.

Thus, without a paradigmatic shift, both government and the aid sector are likely to continue prioritising infrastructure responses to climate change, in preference to resilience building activities. The poor level of human resource capacity (because of poor education levels, low salaries and low levels of resourcing) at the sub-national level inhibits cross-scale coordination with, for example, the Ministry of Health struggling to implement policies on the ground.

Chapter 3, focussed on Myanmar, takes a different approach. Rather than focussing on responses within the health sector itself, it asks what role the health ministry in Myanmar plays in CCA governance, and the scope to enlarge that role.

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# Chapter 2 Publication

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# 2.1 Abstract

The purpose of this chapter is to explore governance limits to climate change adaptation in Cambodia's health sector, as well as possibilities for change. Poor coordination across government sectors and a failure to prioritise human resource development result in climate change adaptation limits. This chapter explores these two areas of adaptation governance, focussing on government and international aid sector decisions and priorities that undermine effective adaptation in Cambodia's health sector. The chapter highlights a pessimistic outlook for human resource development. Despite this some recent changes suggest a government with an increasing commitment to sustainable development, including adaptation, and these changes may support better coordination of adaptation.

# 2.2 Introduction

Around the world, the impacts of climate change are already observable in changing precipitation patterns and resulting changes in freshwater availability (WHO 2015a). This will affect agricultural productivity, and there are significant implications for human health. There are direct impacts on food and water security, and follow on impacts such as the spread of infectious diseases changing (Costello *et al.* 2011); the implications for human health are particularly severe in developing countries (Lesnikowski *et al.* 2013). The purpose of this paper is firstly to explore existing governance structures and systems that limit adaptation in

Cambodia's health sector. Secondly the chapter highlights both positive and negative aspects of the outlook for adaptation in Cambodia's health sector.

The rationale for undertaking this research is that, at its core, adapting to climate change is about people and communities. In this context, Lesnikowski *et al.* (2013) describe populations living in developing country contexts with weak governance systems and institutions as being disproportionately susceptible to climate-related health risks. This makes research into how developing country decision makers choose to deal with these impacts a worthwhile endeavour.

The Intergovernmental Panel on Climate Change (IPCC) views adaptations in human systems as interventions designed to reduce damages associated with climate change impacts or, conversely, to maximise benefits (IPCC 2014d). Resilience in the face of climate change relates to socio-ecological systems and their ability to cope with climate-related disturbances without losing their core identity (IPCC 2014d). In the health sector, WHO (2008) recommends controlling climate sensitive health risks through national policies, plans and programs. Specific activities include strengthening of human resources and health infrastructure, as well as strengthening surveillance and response systems. It is also important to consider the health impacts from other sectors such as water resource management, and health sector participation in preparation of national adaptation plans of action, and national communications required by the United Nations Framework Convention on Climate Change (UNFCCC).

Adaptation constraints are defined as those factors that make it more difficult for a system or society to adapt to climate change. In contrast, an adaptation limit is a constraint which is severe enough that adaptation can no longer occur (IPCC 2014d). Adaptation limits can be either hard or soft. Hard limits are those which cannot be overcome, such as the physiological capacity of organisms to adapt to a changing climate. In contrast, soft limits exist when it is conceivable that changing circumstances may allow what had previously been limits to be addressed as constraints (IPCC 2014d). An example of a soft limit is where scarcity of local-scale modelling of climate change impacts results in decision makers deferring decisions on climate change responses (see for example Morgan 2011).

Climate change adaptation requires both political action and social mobilisation (Huang *et al.* 2011), and so an understanding of climate change governance is fundamental to its implementation. Governance in this chapter is taken to be a society-wide process of decision-making (Graham *et al.* 2003). Governance structures include all elements in society that can influence policy decisions including government, civil society, business, and international organisations. Picketts *et al.* (2014) argue that involving people at the local level is more likely to lead to appropriately targeted actions in that location.

This research about climate change adaptation governance in Cambodia's health sector is informed by two theories that explore networked systems. The Anglo-governance school has its roots in institutionalism and sees national governments as limited agents that must rely on guiding mechanisms and diplomacy to secure cooperation from other organisations within a broader network (Bevir 2009). Modern organisation theory values collaboration between individuals, systems and processes to achieve results (Hicks and Gullet 1975). By viewing adaptation through an organisational and governance lens, this research highlights adaptation limits in Cambodia's health sector associated with existing government and governance structures and processes. Some current transformations that may address these limits are noted.

Below is a review of relevant literature, followed by a description of the research methods used. Research results are then presented and discussed, highlighting two adaptation limits in Cambodia's health sector associated with governance systems.

# 2.3 Context

The literature review has four sections. First is an introduction to health and adaptation, followed by a review of the climate change adaptation and capacity development literature. Third is a review of the literature that discusses the coordination of climate change adaptation, and fourth is background information to the Cambodian context.

## 2.3.1 Overview of health and adaptation

In debates about climate change, the impacts on human health have received limited attention; for example in the lead up to the 15<sup>th</sup> Conference of the Parties to the UNFCCC in 2009 only 4 of 47 nations gave consideration to human health. (Costello *et al.* 2011). This is

despite direct causal links between changes in climate and weather patterns and a number of key public health concerns, such as the distribution and prevalence of infectious diseases, including vector-borne and water-borne diseases, as well as increasing problems of water and food security (Lesnikowski *et al.* 2013, WHO 2015a). For example, both drought conditions and flooding, which are expected to increase in countries like Cambodia, are linked to increases in the number of cases of water borne diseases such as dysentery, typhoid and cholera (WHO 2015a). To be effective, measures to adapt to these increasing risks will need to include the development of early warning capacity through monitoring and surveillance to control outbreaks, as well as building lay people's knowledge and awareness about the risks of water-borne diseases (WHO 2016). The changes to climate-related health impacts are expected to disproportionately affect those who already face high health risks. An example is a poor population already suffering from a high ill-health burden and thus sensitive to climate-related diseases, and that is living in a place with weak institutions and high levels of political inequality. (Lesnikowski *et al.* 2013). This accurately describes the situation for many communities in developing countries such as Cambodia.

Huang *et al.* (2011) noted in their review of ten years of global adaptation literature that specialised government sectors and uncoordinated policy goals inhibit responses to climate change. This can be further complicated because climate change adaptation is just one development consideration among many for developing countries (see Sosa-Rodriguez 2014). Effective adaptation requires making policy decisions, then resourcing and implementing them (Klein *et al.* 2014). There are a variety of governance mechanisms that can support both adaptation policy-making and implementation, such as clear mandates and inclusive decision-making. However, some authors note the lack of knowledge about effectiveness of different adaptation pathways (Huang *et al.* 2011), which can delay and disrupt policy decisions. Dany *et al.* (2015) break this lack of knowledge into levels of knowledge availability and understanding about adaptation, and discuss financial capacity and ability to coordinate.

#### 2.3.2 Capacity

The United Nations Development Programme (UNDP) defined capacity as "the means to plan and achieve" (UNDP 2009, p. 5). Capacity development is "the process through which individuals, organizations and societies obtain, strengthen and maintain the capabilities to set and achieve their own development objectives over time" (UNDP 2009, p. 5). A review of the

climate change adaptation literature highlights a number of types of capacity that may impact on adaptation responses, as presented in Table 1 below:

Table 2.1: Typology of Capacity

Type of Capacity	Source(s)
Financial and resourcing	(Dany et al. 2015)
Human resources, skills and understanding	(Willems and Baumert 2003, Bowen et al. 2015,
	Dany et al. 2015)
Coordination, management and decision-	(Willems and Baumert 2003, Bowen et al. 2015,
making	Dany et al. 2015)
Context (regulations, systems and	(Willems and Baumert 2003, Dany et al. 2015)
information)	

Capacity development is of particular importance in the health sector because of the complexity of impacts of climate change on human health (Huang et al. 2011). As Costello et al. (2011, p. 1878) argued, "[w]eak health governance and management structures in developing countries require long-term investment in human capacity". Abouzahr and Boerma (2005) provided detail, noting an international donor focus on urgent requirements for health-related data rather than on longer term capacity development, resulting in developing world health systems that are unresponsive, fragmented and complicated. This exacerbates the challenges of direct health-related adaptation as well as possibilities to coordinate with other sectors such as agriculture and water management.

## 2.3.3 Coordination

Adaptation to climate change is a cross-cutting issue and requires cooperation at different levels and across scales. Carlsson-Kanyama *et al.* (2013) found that lack of action at higher government levels could constrain adaptation at more local levels, for example where local governments are not granted the authority to impose sanctions for non-compliance with adaptation-related policies. There is also a recognised need for coordination across sectors and between organisations (Costello *et al.* 2009). Human health, for example, can be affected by waste-water management, which may be privatised or supported by non-government organisations (NGOs) in some jurisdictions. The complex nature of interactions between different actors can be a barrier to climate change adaptation because objectives, planning timelines, and levels of authority and resource access vary significantly (Adger *et al.* 2009). Coordination is also important because even where long-term objectives are aligned, organisations and government departments may have conflicting short-term goals.

## 2.3.4 Cambodia

Cambodia's adaptation responses in the health sector are located within the broader national adaptation policy framework. The country ratified the UNFCCC in 1995 with the Ministry of Environment initially having responsibility for its implementation. In 2003 the Cambodian Climate Change Office (CCCO) was set up within the Ministry of Environment, primarily to develop Cambodia's National Communications to the UNFCCC (Bowen *et al.* 2013). Cambodia's National Climate Change Committee (NCCC), charged with preparing and coordinating government strategies, plans and programs on climate change issues, was established in 2006. The NCCC was chaired by the Prime Minister and included 19 government ministries in its membership. Its main role was to manage greenhouse gas emissions, but also had a mandate to oversee work on climate change vulnerability and adaptation (Solar *et al.* 2010). In 2009 the CCCO was upgraded to become the Climate Change Department (CCD). In May 2015 the National Council for Sustainable Development (NCSD) was established, further elevating the visible importance of sustainability issues. The NCSD secretariat now incorporates the CCD (interview data).

In 2006 the Ministry of Environment prepared Cambodia's National Adaptation Programme of Action (NAPA), which included human health as one of four key areas for adaptation action (RGC and MoE 2006). Apart from health, the three other priority areas identified in Cambodia's NAPA were agriculture, forestry and the coastal zone (RGC and MoE 2006). Subsequent to this, Cambodia's National Climate Change Action Plan for Public Health identified transmission of vector borne disease because of increasing precipitation, water/food borne disease linked to poor sanitation, and food insecurity related to extreme weather events as its focus areas (Climate Change Technical Working Group for Health 2014). Cambodia's health sector also has a national disaster risk management plan, which prioritises increasing internal capacity to prepare for and respond to disasters, as well as capacity to assist with disaster prevention and recovery (MoH 2015b).

Cambodia's ongoing decentralisation programs, which have been implemented over two decades (see Turner 2002), are an additional feature affecting adaptation. The country has six administrative levels of government, ranging from the national government to groups, which sit below the village level (Rushton 2008), and these are all affected by the decentralisation programs.

## 2.4 Methods

This qualitative research was based primarily on in-depth semi-structured interviews with senior staff from the Cambodian government, from NGOs and from international organisations. The government officials interviewed worked at the Ministry of Environment (MoE) and the Ministry of Health (MoH). Interviews were conducted with representatives from the World Health Organisation (WHO), the Asian Development Bank (ADB), the UNDP and the United Nations Environment Programme (UNEP). In order to explore the implications of national level climate change adaptation decisions and policies, interviews were conducted with senior staff from NGOs working locally and nationally, in both service delivery and research.

Thirteen interviews were conducted, six with government officials, four with personnel from international organisations and three with NGO personnel. All interviews were conducted in English, and varied in length from 29 minutes to 1 hour, 45 minutes (average length 63 minutes). Interviews were transcribed, and interview transcripts were returned to respondents for them to check the interview record for accuracy. The researcher read each transcript several times, identifying themes evident within each interview. Following this, all data for themes common across transcripts were grouped together, initially using highlighter colours, and then by copying data into a file created for each theme. These themed files were then reviewed to identify sub-themes and used as the basis for the results section of the chapter. The themes and ideas generated were further substantiated through analysis of policy documents and existing research.

#### 2.4.1 Limitations

There are three limitations associated with this study. First, while public health has clear links with other sectors such as agriculture and water management, an in-depth study of these links is beyond the scope of this paper. Second, some respondents did not have much time available as field research was conducted during the lead up to the 21st Conference of the Parties to the UNFCCC (COP 21), and this reduced the depth of these interviews. Finally, all but two respondents were male, despite an active search for female interviewees. The research focus was government policy and its implementation, so this should not significantly impact on research findings. It does highlight a male dominated arena, which raises questions

about decision-making processes. For example, pregnant women and children have been identified by the world health organisation as being among the most vulnerable in Cambodia to food insecurity (WHO 2015a), and food insecurity is directly linked to climate change impacts. In spite of this, Cambodian women appear to be largely absent from the policymaking arena.

## 2.5 Results

The results are divided between capacity-related and coordination-related responses. Interview data is cited using interviewee numbers. For example interviewee number seven appears as (#07).

## 2.5.1 Capacity

Capacity-related results are broken into four areas. These are: 1) Cambodia's education system, 2) government salaries, 3) under-resourcing, and 4) concerns about a lack of capacity development focus in both government and NGO initiatives to date.

### 2.5.1.1 Education

While not universal, the educated and intellectuals in Cambodia during the Pol Pot era were often targeted for execution, and educational resources were destroyed (Deth 2009), leaving Cambodia with an extremely low level of human capacity. In 2010, apart from Myanmar, Cambodia had the lowest spending on schooling of any of the ten member states of the Association of South East Asian Nations, and this spending as a percentage of the budget halved between 2000 and 2014 (Strangio 2014). The ability to achieve results in developing sustainable development pathways depends on the talent and human resources available, and this has been constrained in Cambodia because of the lack of government funding and attention paid to the education system. As described by a senior government bureaucrat, "human resources is always a constraint for us. We have young dynamic staff, but they don't have much experience. Especially with the kind of experience on research and policy formulation" (#08). According to the same respondent, current low human resource capacity in Cambodia can be linked to a history of the government placing a higher level of importance on achieving political stability than on developing the education system. This has been changing over the last three years (#08), which links to the observation from an employee of

an international organisation that there is political pressure for reform, "they [the Cambodian ruling party] had 96 seats in the previous election, but now they got, I think, 65 or 68 seats, so they lost 20 seats. So, it's pressure them for reforms" (#09).

## *2.5.1.2 Salaries*

Problems with human resource capacity do not just relate to levels of education and experience. A respondent from the NGO sector described low government salaries pushing health staff to work in private clinics in addition to their government job with the result that, "even if you build the capacity of people, there is no guarantee that they will perform their roles, if they are focussed on something else — other business going on in their lives" (#04). This view is supported in the literature: "Many clinical staff members have second jobs in the medical industry, operating private clinics or owning pharmacies. They often arrive late to work in the public health centres because of commitments to their private patients" (Rushton 2008, p. 78). The sentiment was also echoed by a respondent from an international organisation: "[t]he biggest challenges is overall weak and limited commitment of government officials" (#09). This respondent noted some recent improvements associated with increasing salaries and changing management methodologies.

## 2.5.1.3 Limited financial resources

One aspect of resourcing that respondents talked about was the impact that broader governance arrangements, including decentralisation, have had on the ability to adapt. While there are guidelines to ensure that sub-national policy-makers take climate change considerations into account when making decisions (#09), one senior government official noted that in "many sectors when decentralisation is implemented, I think they decentralise more responsibility to you, but not authority or resources" (#08). This idea was echoed in the words of an NGO worker, "[o]ne of the complaints that comes from them [the Provincial Committee for Disaster Management] is the fact that they have no money issued to them until the disaster actually happens" (#04). The reason for not decentralising authority or resources may be because the central government does not wish to hand over power to subnational levels (#08). This respondent argued that full decentralisation in the health sector is still a long way off and said,

"I would expect that the national Ministry of Health would empower more in the health sector to the sub-national government because I have found that the health centre has a very important role in serving the public interest. But looking at their resources – I found very disappointed" (08).

## 2.5.1.4 Limited capacity building

In a resource-constrained environment where there is political pressure to reform, the government is likely to prioritise *visible* adaptations, so that community members are reminded on a daily basis what their government is doing for them. This is linked to infrastructure and other tangible responses being favoured. One government official, talking about climate change adaptation and health noted, "Cambodian people would like to see more infrastructure, like buildings, or facilities - car, vehicle, like that – and then they say, 'oh, it's a big reform.' But to me that's not reform that's materialise ...." (#08). This view may tie to Strangio's (2014) argument of a culture within the government of 'gift-giving' for political purposes. Another respondent, similarly, noted that:

"They [the Cambodian government] do not really want to spend lot of resources into the capacity building. They want to see more visible infrastructure, visible infrastructure that the people can see. So something that people cannot touch, cannot see, they [the government] do not really want" (#09) (emphasis added).

However the government culture of gifting material things may be based on inaccurate assumptions, with an interviewee from a Cambodian research institute reporting that, "a number of time I met a number of health staff in the rural area, what they report to me is that, 'we don't want the new and modern machine, what we just want is the common one that we know how to use it well'" (#12).

The NGO sector also has a tendency to prioritise visible results over capacity development because it facilitates reporting to funding agencies. Generally, NGOs have timelines that reflect a focus on results and can lead to management decisions that do not necessarily link with improving the abilities of local government to perform their tasks. One NGO worker noted that, "you look for a work-around in the sense that if the Provincial Committee for Disaster Management don't have the systems in place ... then we try and look for someone

else who has better systems in place" (#04). For ease of reporting it can be tempting to measure indicators like funds disbursed or number of workshops conducted, but longer term outcomes of an adaptation project including degree of empowerment (#10), level of ownership (#10) and capacity development are much more difficult to capture (see UNDP 2009). Perhaps for these reasons, despite Cambodia having had over 20 years of international support, an employee of an international organisation noted that the implementation capacity at the Ministry of Health was still lacking, "[b]ut coming into implementation is very limited. Mainly Ministry of Health would not have enough resources including financial capacity and human resource capacity to translate what they have written on the paper [laws, regulations, decrees etc...] into practicality" (#11).

## 2.5.2 Coordination

Coordination issues in Cambodia that are identified in the adaptation literature include unclear mandates and government agencies with overlapping responsibilities. For example, while the Ministry of Environment (MoE) is the overall lead agency for climate change in Cambodia, the "Ministry of Health [MoH] and the MoWRM [Ministry of Water Resources and Meteorology] are the central actors in the health and water networks, respectively, but do not have the requisite roles and responsibilities to drive the CCA [climate change adaptation] agenda" (Bowen *et al.* 2015, p. 5).

Coordination of climate change actions was viewed by respondents as important. A respondent from an international organisation talked about it in terms of the health sector, "... health is not limited to just the health sector, but achieving health outcomes through other sectors, especially the water and sanitation hygiene [WASH] sector, which is largely outside the Ministry of Health" (#07). In order to meet the need to facilitate coordination and information sharing between different departments, technical working groups (TWGs) have been established, however respondents raised a number of concerns about the TWGs, including concern about choice of membership:

"... while there is a climate change technical working group at the ministerial level ... there are some key departments within the Ministry of Rural Development which are not included – the Department for Rural Water

Supply and the Department for Rural Health Care are not included on that technical working group on climate change" (#04).

Other concerns related to the operation of the TWGs included that, "... on paper there is a technical working group, sub-groups to coordinate the climate change, but they rarely meet. And they have names of senior officials, but when they come to meetings it is only junior representatives" (#09). Respondents also noted that TWGs require project-specific (i.e. donor) funding in order to meet; "[i]t [cross-ministry collaboration] works well, activity by activity – it's not something that would take place without the injection of project funds" (#07). Likewise, a senior official from the Ministry of Health noted that, "... right now it has just started [a donor funded health and adaptation project], so not yet any monitoring or evaluation, just start. So maybe later, two month later, maybe quarterly or something like that we [the TWG] will meet and report each other activity and maybe make a recommendation ..." (#05). These responses, supported by observations from other interviewees (eg. #02, #03, #06), point to a national government that will allow interministerial coordination mechanisms such as TWGs to operate, but does not see them as a high priority.

At a higher level than TWGs are the national level committees and councils including the NCCC and the NCSD. A respondent from an international organisation noted that inter-ministerial coordination in Cambodia is generally challenging because of a vertical system of government and a culture of people protecting their 'turf'. According to this respondent, staff in the environment ministry have not followed this route, but rather "they've given opportunities to other ministries to benefit from climate finance ..." (#01). Despite this positive picture, an employee of an international organisation observed that, "there is Ministry of Environment initially – they were the line ministry, but they don't have any power to coordinate. They don't have resources ... to make sure that coordination exists" (#09).

# 2.6 Discussion

The discussion is divided between capacity-related and coordination-related issues.

## 2.6.1 Adaptation limit one: Capacity development

Poor human resource capacity in Cambodia is a product not just of the targeted killings during the Pol Pot era. Neither the Cambodian government nor the international aid sector have placed a high enough priority on individual capacity development in the health sector. Following the UN sponsored elections, the international aid sector saw Cambodia as a 'clean slate' on which they could build state systems and structures, failing to take into account the deep rivalries between political factions (Strangio 2014). Because these rivalries were not openly acknowledged and addressed they led to a government focus on the urgent problem of political stability rather than on longer term issues such as wage growth, or developing a high quality education sector (#08).

A 'living wage' should support a worker's basic standard of living, including consideration of supporting his/her family and paying for health care, education and recreation (Anker 2011). However, when governments set wages they do not just consider the needs of workers, because there are "possible negative effects of higher wages on employment and economic development" (Anker 2011, p. 1). Wages for local level health workers are not sufficient, and so these government workers are likely to be distracted from their government role by the need to supplement their income (#04). This distraction has a detrimental impact on service delivery, and forms an adaptation limit for local communities.

While the Cambodian government's loss of 20 of 90 seats in the 2013 election puts pressure on them to convince the public that it is looking after their interests (#09), this will not necessarily lead to a focus on issues such as wages or capacity development. The government has a history of gifting material items (Strangio 2014), possibly linked to a perception that Cambodian people are swayed by physical infrastructure and other tangible objects (#09). The political pressure to reform may therefore exacerbate the focus on infrastructure as a response to climate change.

At the same time, the international aid sector is results focussed, and there are difficulties in linking increased capacity to particular capacity development interventions (eg. UNDP 2009). In terms of evaluating projects, one NGO worker observed that "it's statistical bean counting, we're just counting for the sake of counting" (#10). Counting the number of workshops that

are run or the number of people who attend trainings does not provide information on capacity development, which:

"is essential to the success of any development enterprise. Without it, the integrity of development achievements can be compromised and progress can remain rootless and illusory, separated from the capacities that already exist and vulnerable to the increasingly severe and complex challenges facing the world today" (UNDP 2009, p. 9).

The difficulty of measuring changes in capacity is combined with a competitive results-oriented aid environment, which can easily lead to NGOs focussing their attention on easily measurable aspects of their work. While attending individual trainings does not necessarily lead to capacity development, Bowen *et al.* (2013, p. 282) noted that the capacity developed during the collaborative process of developing Cambodia's National Adaptation Programme of Action (NAPA) was "at least as important" an outcome as the NAPA itself.

## 2.6.2 Adaptation limit two: Coordination

Lack of coordination at the government level has limited Cambodia's adaptation options. The NCCC coordinated the work of 19 different ministries, and climate change technical working groups (TWGs) brought together technical personnel from government agencies for coordination of effort. However TWG effectiveness was constrained in four ways, which together formed an adaptation limit.

Firstly, the government did not prioritise TWGs. While senior officials' names appear on TWG paperwork, these officials often sent subordinates in their place when TWGs did meet (#09). Secondly, TWGs did not meet unless there was project (donor) funding allocated to them (#05, #07). Thirdly, relevant departments were not always invited to participate. For example the departments of rural water supply and rural health care were reportedly not included in the ministerial-level climate change TWG (#04). Finally, up until 2015 there was a separation of the technical and political aspects of climate change action (#08); the TWGs did not operate in tandem with the NCCC. While each of these as an individual constraint may have been overcome, in combination they place limits on effective coordination of climate change adaptation.

There is room to hope that some of these coordination issues are being addressed in a systemic manner, with the establishment of the National Council for Sustainable Development (NCSD) in May 2015. The NCSD had not yet met at the time of the field research for this chapter, however the model brings together both political level personnel and the technical personnel who are intended to be the 'bridges' between the ministries:

"... this council [the NCSD] also demand for each ministry appoint a technical, like a focal point. So it's kind of a technical person who will be able to assist the secretary of state from each ministry to have a kind of a full information at the council meeting" (#08).

The NCSD is funded by the Cambodian government (#08), indicating a higher level of interest and ownership in the council than there has been in the climate change TWGs. This should lead to a higher likelihood that those who are designated on paper as members will be the people who attend meetings.

There are three reasons for caution in assessing the likely effectiveness of the NCSD. First, the environment ministry does not have the resources and power to ensure coordination with other ministries (#09), so the NCSD's success may partly depend on higher-level support. Second, the NCSD structure does not address the issue of which ministerial departments will be involved, which may result in relevant departments not having a voice on the council. Finally, the Cambodian government has a history of developing policies, but not following through with policy implementation (Strangio, 2014; see also Rushton 2008), and successful linking of the technical and political elements will depend on strong government commitment. It remains to be seen how effectively the NCSD coordinates Cambodia's sustainable development including climate change adaptation in health. This is an area for future research.

# 2.7 Conclusion

This paper makes two contributions to the academic literature on adaptation limits. First, it highlights two governance limits that affect the ability of Cambodia's health sector to deal with the impacts of climate change. The first limit is a lack of focus on developing human capacity in Cambodia. This can be seen directly in the prioritisation of infrastructure

responses over capacity development by the Cambodian government, and the international aid sector's prioritisation of reportable results. It can also be seen indirectly in the low wages for government employees which have resulted in public health officials arriving at work late because of external commitments. Finally it can be seen in the low levels of funding for education compared with neighbouring countries. The second governance limit to adaptation is poor coordination across sectors. Despite international donors supporting the establishment of TWGs to link technical personnel across ministries, including for adaptation in Cambodia's health sector, the working groups are not prioritised by government and only meet when there is project-specific donor funding available. When the working groups do meet not all relevant government agencies are invited to participate; for example the departments of rural water supply and rural health care were not invited to participate in climate change TWGs. Finally, up until 2015 the political and technical discussions on climate change in Cambodia were disconnected.

The second contribution of this chapter is a discussion about Cambodia's outlook in coordinating adaptation, and developing capacity to adapt to climate change. The newly established NCSD is a potential solution to the coordination issues described above. However, the operation of the NCSD should be monitored for the involvement of government departments and agencies as well as for implementation of its mandate. There is reason for cautious optimism, however, because the design of the NCSD includes mechanisms to support coordination between technical and political levels as well as across ministries. In addition, as a government-funded entity the NCSD has the potential to make significant improvements to the coordination of responses to the impacts of climate change in Cambodia's health sector. Despite some changes in the education sector over the last three years, the outlook for capacity development is not as positive. While there is political pressure for the government to reform, the reported 'gift-giving' culture within government may encourage further investment in infrastructure and other hard adaptation responses, rather than investment in people. At the same time, issues such as providing a living wage for health workers appear to remain at odds with broader economic interests.

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# Chapter 3: The Health Sector's Role in Governance of Climate Change Adaptation in Myanmar

# Introduction to Chapter 3

Chapter 3 of this thesis addressed the following research questions:

- What are the primary governance factors that constrain and limit adaptation and health in Myanmar?
- What scope exists for the health ministry to play a role in addressing adaptation and health governance constraints?

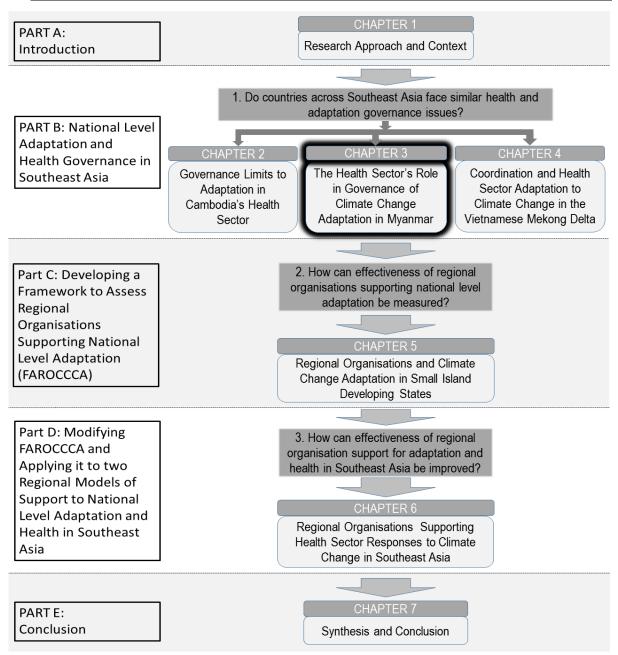


Figure 3.1: Thesis Process Diagram (highlighted chapter indicates current location in thesis)

Chapter 3 of the thesis asks what role Myanmar's health ministry plays in the governance of CCA in Myanmar, and whether there would be scope for this role to be enlarged. The chapter highlights substantial differences between Myanmar and Cambodia. For example, Cambodia's health ministry lacks both the human and financial resources to effectively implement policies and strategies but in comparison, while Myanmar's health services are under-resourced compared with other Southeast Asian countries, within Myanmar the health ministry is prioritised by government, and its personnel from the grass-roots levels up to the national level are well regarded. Climate change impacts in the two countries also differ, with Myanmar facing rising numbers, and intensities, of extreme events, whereas Cambodia is relatively insulated from climate change impacts (e.g. Yusuf and Francisco 2009). Despite health sector as well as climate change impact differences, poor coordination hampers health and adaptation responses in both countries.

The literature which discusses Myanmar's health sector overall describes it as weak and under-resourced with limited capacity (e.g. Htet *et al.* 2014, Risso-Gill *et al.* 2014). Despite this, however, by focussing on Myanmar itself, a key finding of this paper was that from an internal perspective, Myanmar's health ministry and health sector are in a strong position. For example, Risso-Gill *et al.* (2014) noted that Myanmar has sound health policies, and Myint *et al.* (2015) reported a dramatic increase in the government health budget between 2011/12 and 2015/16. Additionally, the primary research for this chapter found that public health professionals from the health ministry are seen as desirable leaders within other ministries, and that health ministry personnel are held in high regard at grassroots levels, at least partly because of the support provided through the health ministry in times of emergency, for example, via mobile health clinics (GOM 2013).

Despite these positive attributes, adaptation and health responses in Myanmar remain hampered by poor coordination across sectors and across scales. For example, when preparing disaster management plans at the township level (see Figure 3.2 for an outline of administrative levels in Myanmar), planners tend to focus only on, and work only with, other personnel from the township level. Thus, they are failing to fully take into account the needs and desires of people and communities at the village-tract and village levels, as well as higher level priorities and strategies. Similarly, recognising problems related to poor coordination, Hiebert *et al.* (2016) argued that delivery of health services could be used as a way of testing

models of coordinating across scales as well as between organisations. Coordination is a recognised need in Myanmar that is reflected in policy documents, but implementing coordinated responses to disasters and climate change remains a challenge.

The lack of coordination observed in Chapters 2 and 3 is further reflected in Chapter 4, which examines coordination challenges which impact on health and adaptation in the Vietnamese Mekong Delta.

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# Chapter 3 Publication

Gilfillan, D., (Under Review). The health sector's role in governance of climate change adaptation in Myanmar, *Climate and Development*.

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# 3.1 Abstract

Myanmar is a least developed country transitioning to democracy, but has many holdovers from its recent military-controlled past. At the same time, extreme climate-related weather events are undermining the health ministry's capacity to support people to live long and full lives. This paper describes existing climate change-related challenges confronting Myanmar's health sector and explores opportunities for the health ministry to influence other health determining sectors, including disaster risk reduction. It was a qualitative study, drawing on semi-structured interviews with government officials from health, social welfare, environment and rural development, as well as with personnel from international and national NGOs and organisations. Interview data was triangulated with policy documents and on-the-ground research. The research found that Myanmar's governance structures are changing rapidly, and that responding to disasters is an urgent priority that has overshadowed planned long-term adaptation to climate change. Furthermore, poor coordination across scales and sectors inhibits effective adaptation and disaster risk reduction. In this context, the health ministry, already involved in disaster response, is well placed to draw on its vertical and horizontal penetration to seize an existing window of opportunity and improve climate change responses and disaster risk reduction by taking on a coordinating role.

# 3.2 Introduction

When cyclone Nargis struck Myanmar's Ayeyarwady Delta in 2008 lack of early warning systems for the population, lack of preparedness for the cyclone's devastation, and lack of resources for immediate recovery, meant that 140,000 people died (Kreft et al. 2015). In the face of the cyclone, lack of resources, preparation and warning systems substantially increased vulnerability levels, which are a function of both physical impacts and the affected population's coping ability (Yusuf and Francisco 2009). Confirming a climate change signature for a single event is difficult, however Colbert et al. (2013) noted that climate change is changing historical cyclone pathways, and DOMH et al. (2009) observed Bay of Bengal cyclone tracks trending southwards, making them more likely to cross the Myanmar coastline into the Ayeyarwady Delta. Similarly, Myanmar's Intended Nationally Determined Contribution (INDC) reported an increase in the recurrence rate and severity of extreme weather events over the last six decades (MOECAF 2015), and farmers have observed increasing temperatures and erratic rainfall, altering their agricultural practices accordingly (Swe et al. 2015). Along with extreme temperatures, the climate change impacts to which people in Myanmar are most vulnerable are extreme weather events (NECC 2012), which impact both directly and indirectly on population health (WHO and UNFCCC 2015, see also Lesnikowski et al. 2013 for arguments about health and vulnerability of developing countries to climate change impacts). Climate change adaptation (CCA) should assist vulnerable populations to cope, and can either exploit opportunities or diminish threats associated with climate change (IPCC 2014b). Both aspects of CCA have governance elements that cross sectors and scales, and the climate change literature contains many arguments supporting improved cross-scale and crosssectoral coordination to address climate change impacts (e.g. McMichael et al. 2003, Cash et al. 2006, Armitage 2007, Termeer et al. 2010, Huang et al. 2011, Lesnikowski et al. 2013, Smith et al. 2014, Watts et al. 2015b, Gamble et al. 2016). Many of these arguments relate to the health sector, which may benefit from, as well as drive, improved coordination. In this paper, cross-sectoral coordination refers to interactions between sectors (for example between health and environment). Cross-scale coordination refers to interactions between

governance levels (for example between states/regions and the national level). Coordination

is divided into functional cooperation, "the distribution of tasks among actors," and

collaborative cooperation, the "collaborative action of two or more actors to achieve agreed goals" (Gilfillan *et al.* 2017: 1).

Coordination in Myanmar is challenging. Twenty years of military rule up to 2011 left state/region level parliaments struggling to "assume their basic responsibilities" that come with decentralisation reforms (Ninh and Arnold 2016: 238). This is despite earlier efforts dating back to the British colonial era to decentralise decision-making and management, linked to Myanmar's ethnic minorities wanting a voice in their futures. Historical failure to address their concerns led to multiple prolonged conflicts between ethnic armed organisations and the central government (e.g. Ninh and Arnold 2016). It is unsurprising, therefore, that with recent moves towards democratic governance and peace-building, decentralisation and local level governance have re-emerged as a government priority (Brand et al. 2015, UNDP 2015). Myanmar's constitution, which came into force in 2011, supports decentralisation in principle, but is quite restrictive in practice (GOM 2008). For example, the 14 state/region governments can collect, retain and spend a variety of taxes, however these do not cover local government expenses, leaving the states/regions dependent on fiscal transfers from the centre (Lynn and Oye 2014).

Other constraints to their autonomy relate to narrowly defined responsibilities under the constitution (Nixon *et al.* 2013, Nixon and Joelene 2014), and Myanmar's democratic governance remaining juxtaposed with centralised military rule. For example, the constitution mandates that the secretary of each state/region government be the head of the state/region General Administration Department (GAD), which is controlled by the military. Additionally, one quarter of parliamentary seats at national and state/region levels are constitutionally reserved for military personnel, with amendments to the relevant articles in the constitution requiring approval of "more than seventy-five percent of all the representatives" of the national legislature (GOM 2008: article 436). Despite these constraints, bottom-up development planning processes became a priority under the Thein Sein government that was elected in 2010 (Brand *et al.* 2015, UNDP 2015). Contrary to issues of cross-scale coordination and decentralisation, cross-sectoral coordination is not referred to in Myanmar's constitution. On top of this, the two decades of centralised military control has left Myanmar with poor cross-sectoral coordination, with Kattelus *et al.* (2014) describing the need for improved coordination across hydropower, energy access, land ownership and

food security. Both cross-sectoral and cross-scale coordination are problematic in Myanmar, and both are needed to effectively address CCA and disaster risk reduction (DRR), including for the health sector. The term DRR, as used in the Sendai Framework for Disaster Risk Reduction, focusses on resilience building, reduction of existing risks and prevention of future risks (UNISDR 2015).

This research was conducted to investigate the role of the health sector in the coordination of climate change adaptation in Myanmar. It builds on existing cross-sectoral and cross-scale coordination arguments in the climate change and health literature, and argues that in Myanmar there is a current window of opportunity for the health ministry to support improvement of both cross-sectoral and cross-scale coordination for CCA and DRR.

There are a variety of theoretical approaches that this research could have used. One option was systems theory, with its focus on feedback loops and boundaries. However, it was excluded as a framework because the current rate of change in Myanmar means that governance systems are in a state of flux. As such, the research is shaped by resilience thinking, premised on the idea of having the "capacity to change in order to maintain the same identity" (Folke et al. 2010: 3, see also IPCC 2014). In the 1800s, when Japan was pressured to open its borders to western trade, Japanese leaders decided that for Japan "to be saved from the barbarians [westerners], it would have to respond to the challenge posed by the West rather than ignore it" (Jacques 2009: 52). Faced with an external threat, Japan chose to adapt and take on many characteristics and institutions of western nations, while at the same time retaining "those elements regarded as exclusively and authentically Japanese" (Jacques 2009: 56). In CCA, facing the challenges, rather than ignoring them, is key, and a resilient system is one that continually and iteratively adapts to changing circumstances without losing its identity (Folke et al. 2010). Like Japan in the 1800s, Myanmar faces the external threat of climate change, and the researcher's use of resilience thinking supported exploration of novel solutions that exploit the current volatility in Myanmar's governance structures without interfering with the ministerial mandates that define their roles. Myanmar has 'borrowed' policy ideas, such as its disaster management law, from neighbouring Bangladesh, and likewise, the opportunities discussed in this research should be of interest in neighbouring countries in the region including Bangladesh.

## 3.3 Literature review

This section contains a brief review of the literature that discusses Myanmar's health sector, decentralisation in Myanmar, and health sector coordination for DRR and CCA. This is followed by methods and limitations, results and a discussion section.

## 3.3.1 Background

Myanmar's government health system is controlled nationally (Nixon *et al.* 2013), and has a presence down to the village-tract level (see Figure 3.2). A weak public health sector is to be expected for a very poor nation (e.g. Htet *et al.* 2014), but while Risso-Gill *et al.* (2014) argued that capacity levels and resourcing are limited in Myanmar, they did identify sound health policies. These policies are being backed up increasing prioritisation of the health sector by the government since 2011 (Finch and Win 2013), with substantial budget increases reported between 2011/12 and 2015/16 (Myint *et al.* 2015).



Figure 3.2: Levels of administrative governance in Myanmar

The Ministry of Health (MoH) employs around 13,000 doctors of a total of about 31,500 working in Myanmar (Latt *et al.* 2016: 127, see also WHO 2015b). The remainder work in the private sector, for non-government organisations (NGOs), community-based organisations (CBOs), and ethnic health organisations associated with ethnic armed organisations in areas of contested sovereignty (e.g. Davis and Jolliffe 2016). The government notes the importance

of engaging with these for-profit and not-for-profit health providers (NLD National Health Network 2016), and Figure 3.3 shows the different elements comprising Myanmar's health services. Employing around 40% of Myanmar's doctors, the health ministry is the primary actor in Myanmar's health sector and is responsible for population health. Therefore this research focusses on the role of the health ministry in climate change adaptation in Myanmar.

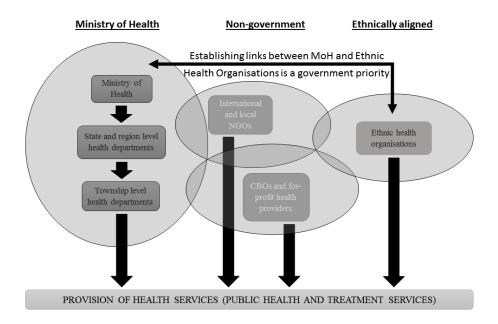


Figure 3.3: Health service delivery in Myanmar (overlaps indicate linkages)

## 3.3.2 Decentralisation

There is a long history in development circles of trying to improve cross-scale governance through decentralisation programs (e.g. Dressler *et al.* 2010). The three distinct elements of decentralisation programs as described by Nixon and Joelene (2014) are also applicable to CCA governance:

- 1). Political decentralisation transfers accountability and decision-making power to subnational levels, such as adapting national adaptation policies for the local context (Tryhorn and Lynch 2010).
- 2). Administrative decentralisation transfers managerial responsibilities to sub-national levels. However, if a higher level government did not grant lower level government authority to penalise non-compliance, implementation of adaptation policies could be undermined (Carlsson-Kanyama *et al.* 2013).

3). Fiscal decentralisation may include transferring planning, budgeting and revenue collection to sub-national levels. Similarly, Costello *et al.* (2009) described local adaptation action on flooding with funding from the global scale.

A primary rationale for decentralisation is differences in lifestyles and circumstances, meaning people demand services from their governments heterogeneously (Saito 2011). Similarly Fisman and Gatti (2002) and Faguet (2014) have argued that context-based, local level decision-making should result in the most appropriate approaches for particular places and circumstances. Related to this is 'subsidiarity', the efficiency gain that should result from the lowest possible level of government being responsible for provision of public services. Decentralisation proponents hold subsidiarity in high regard, arguing that local level governments have better awareness of the particular benefits and costs associated with public services and delivery mechanisms in their jurisdictions (Oates 2006, Falleti 2010, Saito 2011). Critics, however, argue that putting theory into practice is difficult for reasons including that proximity does not automatically lead to officials having increased knowledge or to using their knowledge more effectively than national level officials. There are also crossscale coordination costs of decentralising, with Saito (2011) arguing that specialised facilitation institutions are needed at the centre. Oates (2006: 11) noted that in some domains centralised governance processes can be more efficient and if managed well, decentralised outcomes "can, in principle, emerge from a structure of government with little in the way of real local autonomy". Decentralisation is a complex task, and while many hold it to be a governance ideal, others argue that implementation can be difficult and costly.

## 3.3.3 Health and responses to disasters and climate change across sectors

There are many links between CCA, DRR and health, highlighting the importance of cross-sectoral coordination (e.g. Dasgupta *et al.* 2016). Similarly, Watts *et al.* (2015b: 12) argued that acting on social and environmental health determinants can strengthen "the climate resilience of both preventive and curative aspects of health systems". In Myanmar, improving early warning systems would enable people to move to shelters before the main impact of an extreme weather event, thereby reducing event-related injuries and deaths. On the curative side, establishing and resourcing community-based disaster response groups that include medical personnel could aid immediate recovery efforts, including treating injured people.

Developing a climate resilient health system would avoid feedback loops that undermine the system's ability to provide health services (Samet 2010). For example, in 2008 "[c]yclone Nargis damaged close to 75 percent of health facilities in [37] affected townships", which gravely undermined "access of the rural population to health services" (GOM et al. 2008: 7) at a time of great need. However, resilience does not just relate to 'hardening' infrastructure, with Cheng and Berry (2013) identifying land use planning as an effective adaptation strategy for reducing health-related impacts of extreme weather events. In another example, Pittock and Xu (2011: 1-2) described the Chinese government implementing sectorally coordinated "environmental restoration" adaptation across 2,900 km² of the Yangtze floodplain, which "improved the livelihoods of local people". And in Bangladesh elevated cyclone shelters have helped to reduce health impacts of cyclones (Cash et al. 2013). Disaster preparedness can play a big role in reducing vulnerability to climate change thus reducing negative impacts of climate-induced disasters on human health.

Despite the importance of cross-sectoral coordination, Adger *et al.* (2009) noted complexities associated with variations in levels of authority, resource access, planning timelines and budgeting. Also, even where long-term goals match, the short-term goals of different organisations, ministries and departments may differ. For these reasons coordination will not 'just happen', and Watts *et al.* (2015b) argued that heath sectors should lead, guide and regulate in relation to sectors such as DRR that are health-determining. Possibilities for the health ministry in Myanmar to play this type of leadership role are discussed later in the paper.

## 3.4 Methods and limitations

A review of climate change adaptation literature uncovers a focus on adaptation as a means to minimise the harm that may result from climate change, however adaptation should also consider beneficial opportunities (IPCC 2014b). Approaching Myanmar's situation vis-à-vis climate change from the perspective of resilience thinking led the researcher to identify opportunities for the health ministry and health sector to improve both cross-sectoral and cross-scale coordination for CCA.

The research was conducted between July 2016 and March 2017, with the first stage being analysis of interview data from 18 in-depth semi-structured interviews. Interviews were

coded for themes that emerged and then reviewed again for sub-themes. International agreements and national policy documents relating to CCA and the health sector, as per Table 3.1 below, were then reviewed and analysed, guided by the themes that emerged from the interview data. Finally, the resultant analysis was compared and contrasted with on-theground research on health sector governance and climate change in Myanmar.

Table 3.1: International and national agreements, strategies, policies and plans

Reference	Title	Year	Authority/Agreement
INTERNATIONALLY FOCUSSED AGREEMENTS			
(MOECAF 2015)	Myanmar's Intended Nationally	2015	United Nations Framework Convention
	Determined Contribution - INDC		on Climate Change (UNFCCC)
(MOECAF 2012)	Myanmar's initial national	2012	UNFCCC
	communication under the UNFCCC		
(NECC 2012)	Myanmar's National Adaptation	2012	UNFCCC
	Programme of Action (NAPA) to		
	Climate Change		
NATIONAL LAWS, PROCESSES, STRATEGIES AND PLANS			
(MoNREC 2016)	Myanmar climate change strategy	2016	Ministry of Natural Resources and
	and action plan		Environmental Conservation
(NLD National	Programme of Health Reforms: A	2016	NLD National Health Network
Health Network	Roadmap Towards Universal Health		
2016)	Coverage in Myanmar (2016-2030)		
(MoLFaRD 2014)	Rural Development Strategic	2014	Ministry of Livestock, Fisheries and Rural
	Framework		Development
(GOM 2013)	Disaster management law	2013	Government of Myanmar
(RRD 2013)	Standing Orders for Disaster Risk	2013	Government of Myanmar
	Reduction		
(RRD 2012)	Myanmar action plan on disaster	2012	Government of Myanmar
	risk reduction		
(UoM 2008)	Constitution of the Republic of the	2008	Government of Myanmar
	Union of Myanmar		

Interviewees were recruited to exhaustion through purposive snowballing techniques and ranged from township level personnel to departmental directors from ministries of health, environment, social welfare, and rural development, as well as from local and international NGOs and other international organisations. Interviewees were selected for their knowledge and expertise on governance and climate change issues as well as for expertise in the health sector. The range of disciplines, levels and organisations from which interviewees were selected helped to minimise bias. A single researcher conducted all interviews, and to build trust the researcher relied on personal introductions to interviewees, who were advised that their anonymity would be protected and that they would be able to comment on the interview transcript. Interviews were conducted in English and varied in length from 31 to 121 minutes, averaging 56 minutes each. Interviewees were allocated an individual code for citation purposes. For example, interviewee number five is cited as (#05).

The study has some limitations. First, because of language constraints there is a reliance on interview data and on-the-ground research with regard to sub-national levels. Second, the climate change and disaster governance systems were in a process of adjustment at the time of fieldwork, as the new government had only been sworn in four months previously. Thus, the research focussed on the underlying processes and priorities that support and inhibit action on climate change adaptation, with particular reference to the health sector. Third, the new government's highest priority is finding common ground with the ethnic armed organisations, and outcomes of this may impact on climate change adaptation governance in unanticipated ways. Finally, coordination across administrative boundaries within Myanmar is not considered. While this is an important issue in other parts of Southeast Asia such as Vietnam (Gilfillan *et al.* 2017), the data gathered on this issue in Myanmar was insufficient for research purposes.

## 3.5 Results

This results section triangulates interview data with agreements, commitments, policies, plans and strategies, as well as on-the-ground research related to climate change and health governance in Myanmar. The results are divided into four sections: decentralisation, coordination, reactive policy-making and Myanmar's health sector. The discussion follows the results.

#### 3.5.1 Decentralisation

There is a tension in Myanmar between centralised control and efforts to transfer decision-making to local levels. Nationally there is a new government, and at the sub-national levels officials are 'playing catch-up' in a new system of de-centralised planning in which states/regions have authority to levy a variety of taxes and to control and spend the funds they raised (GOM 2008). Contested sovereignty in several parts of the country make decentralisation challenging, with states/regions in Myanmar already tending to act without reference to national priorities:

"even if the [national] minister gives a clear message that should be applied by the local governments, they just don't follow it. They just do on their own what they think is the best for their region" (#06).

Other interviewees made similar comments (e.g. #11), and it is therefore unsurprising that decentralisation is a contested ideal. For example, Hiebert *et al.* (2016: 2) observed that "[a]II decisions seem to go to Aung San Suu Kyi". While some decisions, such as declaring a state of emergency (#07), are mandated as national responsibilities, other locally focussed decisions are pushed upwards despite decentralisation (#04, #16). Interviewees related this to restricted decision-making authority under military rule, and observed that things are changing:

"slowly they are getting hold of things, because it is a new way of working for them [...] under the generals they would say 'go and build a bridge there', [so] they would go and build a bridge. Now they [have] started thinking" (#08).

There is a lack of planning and budgeting experience at sub-national levels, because only recently have townships and states/regions had to develop budgets. "Before it was like, 'right, here is your money, this is what you have to do with it'. It was allocated, and that was where you spent it" (#16). Brand *et al.* (2015: 69) substantiated this, noting that in many towns there is "little if any experience in municipal governance". Another interviewee discussed limited availability of life jackets during the 2015 floods, because in the budget, "we can only go by line item, and in the line item there is no allowance for buying the life jacket" (#04). Lack of planning and budgeting experience can partly explain the lack of confidence and capacity to make decisions at lower levels (#08, #17, #18), with Grundy *et al.* (2014: 184) observing an "over reliance on vertical management of projects and programs" in the health sector.

Pushing decision-making upwards increases the importance of individuals filling local administrative positions such as township medical officer (#04, #05, #07, #08, #12, #14, #16). It also implies that people in those positions are not necessarily the best equipped, but rather those who are prepared to make decisions, which is combined with a lack of guidelines on how to make decisions (#04, #05, #08). These factors could interfere with the subsidiarity envisioned by decentralisation proponents. Despite the challenges, decentralised planning processes are happening, with local level decision-makers keen to take on decision-making responsibilities (#08). In addition, Nixon *et al.* (2013) reported imminent health and education reforms, with some appointments to be either carried out locally or in coordination with the relevant ministry, despite responsibility for both these sectors not being assigned to state/region governments. This quasi-decentralisation is supported by Oates' (2006)

argument that decentralised outcomes can, in principle, result even where there is little local autonomy. The challenges that Myanmar faces in implementing decentralisation programs are in line with criticisms of decentralisation expressed in the literature (e.g. Saito 2011), however these challenges are counter-balanced by support for the process both nationally and locally.

## 3.5.2 Coordination

Closely linked to decentralisation issues are the multiple scales active in the management of adaptation, disasters and health in Myanmar. Disaster management plans are prepared at the national, regional and township levels, with implementation down to the village level (#10, #12). Links between the township and village-tract levels are often missing in township level plans however, because "when we speak about township level plan, people only talk to township level people to prepare a plan" (#08). Similarly, Hiebert *et al.* (2016) observed limited cooperation, arguing that health services could be used as a testing ground to foster coordinated approaches including across scales. Because of poor coordination, some organisations have been supporting "the township level to [...] update the township disaster management plan. And trying to keep that one in line with the [...] national level" (#17). Lack of human and financial resources to coordinate and implement local DRR activities has motivated the government to work with civil society to improve DRR coordination (#01, #08, #15, #18).

Cross-scale issues can impact on cross-sectoral coordination as well, and one interviewee visually represented efforts at the township/village level to develop links across both sectors and scales, as shown in Figure 3.4:

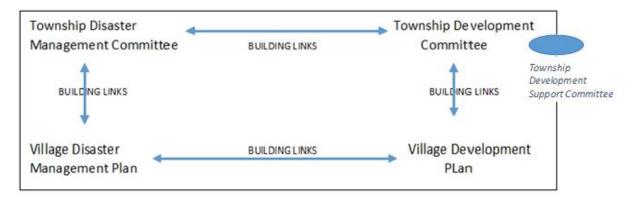


Figure 3.4: Building links across scales and sectors at township and village level (re-created from sketch by (#08))

One reason for the need to build links such as these is that centrally managed departments have staff down to different levels, linking to Adger *et al.'s* (2009) comment about differing levels of authority interfering with coordination. For example, in most states/regions, the Department of Rural Development (DRD), responsible for rural development planning, has staff down to the township level, whereas the Relief and Resettlement Department (RRD), responsible for DRR planning, only has staff to the state/region level. This was observed to interfere with township level development planning and DRR coordination (#08, #13). At this level the GAD is the responsible agency for government agency coordination, as well as coordination with national ministries (Nixon *et al.* 2013). Despite this, no interviewees commented on the role of the GAD, and Ninh and Arnold (2016) observed its continued central role in centralised military administration in the country, supporting interviewees' observations of poor coordination and limited capacity.

Coordination problems were observed at the national level as well, with RRD and DRD duplicating work to develop DRR training curricula (#07). In contrast, the Myanmar Action Plan on DRR (MAPDRR) recognises the importance of cross-sectoral coordination (RRD 2012), and there are current efforts to align it with Myanmar's climate change strategy and action plan (#08). The climate change strategy and action plan similarly recognises that "[d]isaster preparedness and risk management are essential to [...] Myanmar's social and economic development, and for putting it on a climate resilient pathway" (MONREC 2016: 32). Likewise, the Rural Development Strategic Framework refers to disaster mitigation and resilience (MOLFARD 2014).

Despite policy support for cross-sectoral coordination, climate change and disasters are not a priority area for most ministries. For example, the "energy ministry's primary responsibility is to make the country energy secure, climate change is one element of it, not the only one, and not their first preoccupation" (#18). Therefore, where mandates specify particular roles, ministries cooperate functionally but collaborative cooperation between ministries is limited (#07). Collaborative cooperation is further inhibited by a lack of formal or informal networks (#06), and a lack of personnel (#01, #18) also undermines coordination as those in positions of responsibility are extremely busy. For example, "[t]hey have the good people in the climate change working groups, so why should I help for them, they don't need the help from me, so I don't go there" (#05). This interviewee didn't have time available, supporting academic

observation that coordination is both time consuming and expensive (e.g. Saito 2011). The content of policy documents reflects the need for coordination, however observers note that coordination remains poor across both scales and sectors.

## 3.5.3 Reactive policy-making

Natural disasters are an urgent and overriding concern in Myanmar, and many government personnel attribute virtually every natural disaster to climate change, "if you ask [government officials] they will say [...] everything is climate change" (#08). Combined with this is a strong focus on emergency response and post-disaster recovery. During a disaster people are easily mobilised, but once the danger is past disaster-focussed motivations diminish rapidly, "[a]fter that [flood is finished] everybody forget[s], including me, because this is not my work" (#04). Even people observing the river bank near their house eroding are reluctant to move to higher ground (#02), possibly because of more immediate concerns. As one interviewee said:

"I would say, very bluntly, because we are poor, so we think how to tackle with this current emergency time – or short time coming disaster, rather than thinking about [...] how we will consider the climate change" (#12).

Other interviewees also commented on reactive policy-making (#12, #16), and Grundy *et al.* (2014) noted the impact of Cyclone Nargis as one of five main factors influencing health policy development. This is despite strong arguments in favour of proactive planning (e.g Ranger and Garbett-Shiels 2012 noted that failure to plan ahead for climate change could lock societies into development pathways that exacerbate vulnerability, and also that it may become difficult to reactively manage climate-related risks). Some interviewees did observe that preventive measures are starting to gain attention among officials and publicly (#01, #13, #16 #17). This view is also reflected in the Standing Orders for Disaster Risk Reduction, which includes clauses linking DRR to preventive measures such as land use planning (e.g. RRD 2013: Para 22(e)5). As a poor country, Myanmar is just beginning to extend its focus beyond urgent responses, towards longer-term issues.

## 3.5.4 Myanmar's health sector

The prioritisation of the health sector in climate change-related policy documents is mirrored in budgeting trends, and backed up by high quality health personnel. Myanmar's initial

national communication to the UNFCCC places medical care and population health at the top of the national priority list, and public health as one of the six sectors most vulnerable to climate change impacts (MOECAF 2012: i, iv). In the communication's vulnerability and adaptation assessment, two out of 43 pages are devoted to public health and in 9 of the 14 states/regions public health is the top climate change priority (MOECAF 2012: 94). The National Adaptation Programme of Action (NAPA) noted sectoral working groups from eight sectors comprising 36 people, of which eight were in the public health sectoral working group, including two epidemiologists and a deputy director general of the department of health (NECC 2012: 4-5). In terms of resources, one of the finance ministry's five policy objectives is to promote the health and education sectors by increasing expenditure in these areas (MOF 2015), and this objective is being achieved, with Myint *et al.* (2015: 6) noting that, in dollar terms, the government health budget in 2015/16 was 8.7 times what it was in 2011/12. The rate at which the health budget is growing, and the consistent prioritisation it receives in policy documents, show the importance of health services in Myanmar.

There are also indications outside of policy documents and budgets that the health sector has significant sway in Myanmar. Echoing the weighting towards health officials in the NAPA working groups, national level health officials are recognised for their ability to 'get the work done', and have been recruited to, and promoted within, other ministries. The Minister and several other key personnel in the social welfare ministry originally came from the health ministry (#05, #08), which, while it may be depleting human resources for health, does indicate high-calibre training and personnel within the health sector. Related to large budget increases, the health ministry has recently established a disaster response division, and also recently published the health sector disaster management plan (#13, #16).

At the grass-roots level, the health sector is well respected, particularly because of the midwives who live in villages along with the people they serve (#04). In times of emergency the health ministry mobilises mobile clinics (GOM 2013: Article 17(f)), which are staffed with well-trained doctors and surgeons, and because of this the health sector is recognised as being "very powerful in Myanmar in terms of dealing with disaster situation[s]" (#13). One example of this was a description of a township medical officer taking charge of rebuilding an embankment during the 2015 floods using 20,000 sandbags sourced from the irrigation department (#04). The broad recognition of health professionals as desirable leaders within

other ministries, combined with the reputation of health professionals at grass-roots levels further demonstrates the comparative strength of the sector in this least developed country.

# 3.6 Discussion

The results section of this paper highlights poor coordination across sectors and scales in Myanmar. Responding to climate change impacts effectively requires coordinated effort between a variety of sectors as well as between governance scales (e.g. Adger et al. 2009, Watts et al. 2015b). Taking up the challenge of addressing Myanmar's coordination gaps will improve people's lives and well-being. For example, people are deterred from using emergency shelters because of poor access roads (#08), and therefore face higher risk of injury during extreme weather events. The health ministry has a mandate to support people to enjoy a long life, which justifies its existing role in emergency response (#13), and could also support it to play a coordinating role for DRR and CCA. This discussion section both appraises the health ministry's suitability for filling such a role, and considers some constraints it may face if it did take on this role.

## 3.6.1 CCA/DRR coordination across sectors and scales

DRR and CCA coordination in Myanmar is poor across scales and sectors because of a lack of emphasis on coordinating effort. The situation differs from Vietnam, for example, where poor coordination is due largely to structural control measures put in place by the national government (Gilfillan *et al.* 2017). As an example of the lack of emphasis on coordination, planning at the local level in Myanmar is done without reference to levels above or below the level at which the plan is being developed (#08), and states/regions often act autonomously without reference to national goals and priorities (#06). Across sectors, there are duplications of work in a country where lack of personnel undermines coordination (#01, #18), with the DRD and RRD separately developing DRR training curriculums. While there is functional cooperation, particularly in times of emergency, collaborative cooperation to address long-term issues is limited (#07). Lack of a collaboratively cooperative approach to CCA and DRR across scales and sectors is wasteful and undermines the delivery of effective outcomes.

There is a current window of opportunity, which could enable Myanmar's cross-sectoral and cross-scale coordination gaps to be addressed. In the current state of transition change is not

only the norm, but expected and desired (#11). Added to this, the focus on disaster response is beginning to shift in favour of pre-emptive measures (#13), and climate change is something of which people are very aware (#08). While coordination across scales and sectors remains quite poor in Myanmar, there is an awareness of the problem and nascent efforts to resolve it. The opportunities that a policy reform window provides are time-dependent, and in a period of rapid change these factors are unlikely to remain static.

The health ministry has three attributes that link closely to addressing the cross-sectoral and cross-scale coordination gaps. Firstly, it is already actively engaged in DRR with its own disaster response division and a health sector disaster management plan (#13, #16). Secondly, it remains a centrally managed ministry that has good vertical penetration down to the midwives located at the village-tract level. While this centralised control of the health services (Nixon *et al.* 2013) does not fit the ideals of subsidiarity (e.g. Saito 2011, Faguet 2014), it could support and allow the decentralised outcomes from centralised processes outlined by Oates (2006), especially as some staff appointment decisions are being devolved to the state/region level (Nixon *et al.* 2013).

Thirdly, Myanmar's health professionals are respected for 'getting the job done'. As well as the recruitment of health ministry officials into senior positions in other ministries (#05, #08) and working groups for Myanmar's NAPA numerically weighted towards health officials (NECC 2012), at the grass-roots level this reputation is largely because of the midwives are stationed in rural and sub-rural health centres. While the central government is responsible for building sub-rural health centres, the community is responsible for maintaining the centre and looking after the midwife stationed there (#05). This creates a bond of mutual goodwill: the villagers look after the midwife, who in turn looks after the villagers. This positive reputation means that those in the health sector are listened to for their advice, which does not have to be restricted to purely medical advice. Advising those working in disaster and climate change-related areas that have overlaps with human health, such as rural development planning and DRR are likely to have a number of co-benefits which will increase resilience to climate change from the grass-roots level up. The health sector has the social capital from the grass-roots to the national level that would enable it to use its networks and penetration to lead and coordinate advocacy for pre-emptive preparation for climate change including DRR.

For the health ministry to take on leadership role in coordination would be resilience thinking in practice. In the same way that Japan chose to retain those authentically and exclusively Japanese characteristics, while altering institutions in response to external threats, the Myanmar health ministry could modify its role, while remain true to its primary objective of enabling "every citizen to attain full life expectancy and enjoy longevity of life" (MOH 2017: online). It could provide "leadership, guidance and regulatory roles with regard to health-determining sectors and functions, such as [...] disaster risk reduction", in addition to providing direct health services (Watts *et al.* 2015b: 4), in order to secure the well-being of the people of Myanmar.

There will undoubtedly be expenses associated with taking on this role (e.g. Saito 2011), however, the initial investment will be recouped over time as the benefits of well-coordinated responses to climate change and disasters are delivered. For example, poor coordination in Myanmar's recent disaster response resulted in relief efforts being doubled up in some places and no relief being delivered in other areas (#05). Resolving coordination issues will avoid exacerbating disaster induced problems, as per the English proverb, 'a stitch in time saves nine', and hence avoid adding to the costs of the disaster. In addition, from the perspective of the health ministry alone, the coordination role fits well with resilience thinking. Taking a leading role in coordination of health-determining sectors will reduce climate change impacts on the health system and on public health, creating a positive feedback loop, and thereby supporting Myanmar's health system to retain its core identity and structure.

## 3.6.2 Linkages between health and DRR/CCA

As there are government agencies with specific disaster and climate change mandates, it is important to ask why the health ministry should take on an expensive and time-consuming coordination role. There are three compelling reasons for recommending the health ministry do this. First is that neither the disaster nor climate change agencies have a mandate with a primary objective to support the citizens of Myanmar to enjoy a long life (MOH 2017). This broad mandate of the health ministry allows it to take a broader view of DRR, CCA and development activities and provide advice on how they can best work together to achieve both short- and long-term beneficial outcomes.

Second, DRR and CCA and development are all in essence about livelihoods and well-being, and health has strong links with all three. The links to DRR can be seen in the recent establishment of a disaster response division in the health ministry (#13). From an CCA perspective, a healthier population is more resilient and hence able to cope better with climate shocks and changes (Smyle 2014), and for development, a healthier population is more productive and less of a burden on medical services (Smith *et al.* 2014). Third, health is prioritised by government, and the ministry is powerful in its own right. Climate change and DRR policy documents highlight health as a priority area, and the rapid health budget increases of the Thein Sein government are being continued under the NLD leadership (#01). The health ministry's strength lies in its human resource pool and the high regard in which its personnel are held. The broad mandate of the health ministry, government support, increasing levels of funding, and good reputation make it more suitable than other ministries to take on a coordination role.

# 3.6.3 Logistical considerations

Disaster risk reduction is a health-determining sector because of the direct and indirect impacts of natural disasters on human health, and the disaster response division of the health ministry would be a suitable starting point for health to pilot coordination with other sectors for DRR. Agencies working in DRR are keen to find better ways to coordinate, with Myanmar's DRR working group liaising with government agencies to improve disaster responses. Combined with the observed movement in the direction of preparation for disasters, this provides a gap that the health ministry can fill. Because the disaster response division is a recent innovation it would likely be open to taking on roles beyond delivery of health services. By starting with a focus on the immediate and urgent problems of DRR, the health ministry could build a reputation for facilitation, and adjust the focus to include longer-term CCA elements subsequently.

The health sector can also build on current regional initiatives in areas such as health impact assessment, which has the goal of linking development objectives to population health outcomes. For example, the Asian Development Bank is currently running a project in the Greater Mekong Sub-region to assist target countries, including Myanmar, to develop health impact assessment guidelines (ADB 2016b). Involvement of the health sector in initiatives like

the ADB's will help build the confidence of health ministry personnel to collaboratively cooperate with other ministries in order to achieve positive livelihood outcomes. These arguments are general in nature, and exact mechanisms for the health ministry to take on a coordination role will be an area for future research, or an area for assessment prior to implementation.

#### 3.6.4 Constraints

There are two main constraints to the health filling a coordination role. First, the health ministry would have to broaden its focus to include not only health services and disaster response, but also a specialised coordination section. Global moves towards health advocacy and leadership in health determining sectors (e.g. Watts *et al.* 2015b) would provide support to help overcome opposition to adding to the health ministry's portfolio. Second, there is a perception that Myanmar barely has the financial and human resources to cope with disasters as they occur and so lacks resources to pre-emptively prepare for future climate change impacts. Myanmar is a poor country, however changes in the health budget (e.g. Myint *et al.* 2015) indicate that financial resources are available for priority areas, and the shifts already observed towards pre-emptive actions and measures will assist with overcoming perceptions of constrained finances (#01). Additionally, the global-scale arguments for health sector leadership have financial mechanisms associated with them, such as the ADB's health impact assessment project for GMS countries. Funds could be requested through international financial mechanisms to cover shortfalls.

Developing a cost-benefit analysis was beyond the scope of this research. This is a limitation of the research, and is something that should be the subject of future research. The resulting analysis will likely show an initial required investment, as well as a projected 'break-even' point. In the interim, improved coordination for CCA and DRR is likely to deliver significant health benefits to the people of Myanmar, and particularly for the poor and marginalised. Delivering these benefits fits well with the priorities of the government of Myanmar, the health ministry, and with DRR and development objectives.

# 3.7 Conclusion

The purpose of this paper was to examine the health sector in Myanmar, and particularly challenges and opportunities associated with its role in climate change adaptation governance. Three primary contributions to the academic literature on health sector adaptation to climate change are made. First that despite a current focus on disaster response, there are moves towards pre-emptive measures to address disasters as well as a growing understanding of the importance of coordination for disaster preparation and response as part of dealing with climate change. Second, a policy reform window was identified, giving the health ministry an opportunity to take on a role coordinating climate change responses and DRR. Third, that the health sector is ideally placed to take up this role because it has the networks and social capital to support vertical and horizontal coordination, and because it is already deeply involved in dealing with disasters. The health ministry taking on this role would be in line with global moves towards health advocacy and leadership on climate change and global moves towards resilience thinking in climate change responses.

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# Chapter 4: Coordination and Health Sector Adaptation to Climate Change in the Vietnamese Mekong Delta

# Introduction to Chapter 4

Chapter 4 of this thesis addressed the following research questions:

- What are the relationships between cross-sectoral, cross-scale and cross-boundary coordination and adaptation and health in Vietnam?
- Could adaptation and health outcomes in Vietnam be improved by addressing the three dimensions of coordination?

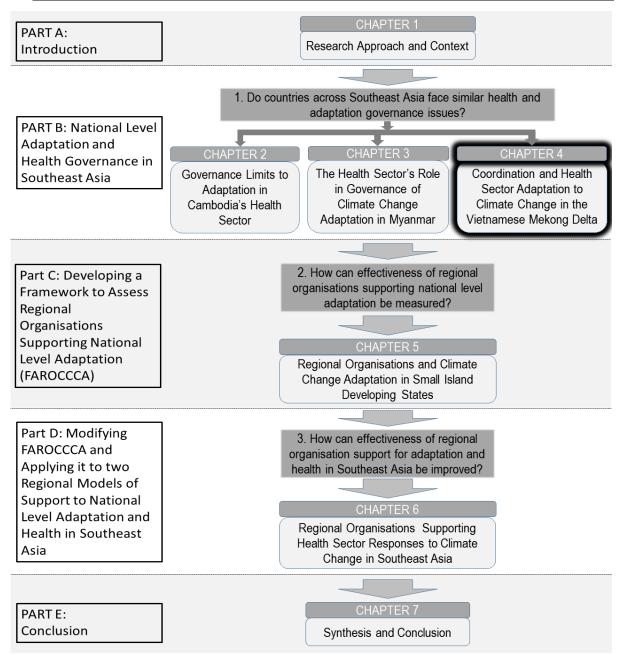


Figure 4.1: Thesis Process Diagram (highlighted chapter indicates current location in thesis)

From a national perspective in Vietnam, Chapter 4 of the thesis found three dimensions of coordination that impact on adaptation and health in the Vietnamese Mekong Delta. Thus, while there are significant differences in governance arrangements across Cambodia, Myanmar and Vietnam, the three countries all face coordination problems that impact on adaptation and health. This highlights a need that regional organisations could help to address.

Over the previous half century, the Mekong Delta has already experienced increasing temperatures, and increased severity of both floods and droughts, with sea-level rise predicted to, for example, increase salt-water intrusion into agricultural areas (Hijioka *et al.* 2014), which will impact on food security and thus human health (e.g. Wahlqvist *et al.* 2012, Watts *et al.* 2015a). While climate change is just one factor among many development priorities (e.g. Sosa-Rodriguez 2014), it is expected to exacerbate environmental impacts of development projects such as dams on the Mekong River (Hijioka *et al.* 2014), making it a major concern for the 22 million inhabitants of the Vietnamese Mekong Delta. Thus, this research into coordination, adaptation and health in the delta adds to the literature on adaptation and health governance.

Vietnam's history and governance arrangements differ substantially from those in Myanmar and Cambodia. The country remains a centrally governed communist state, despite reforms in the 1980s and 1990s to embrace a market-based economy, and associated decentralisation programs designed to devolve responsibilities and authority to more local levels (e.g. Irvin 1995, Garschagen 2016). Continued centralised government control has a number of implications. Firstly, linked to arguments about decentralisation and subsidiarity, government decision-making and documentation do not always reflect provincial and district realities. Secondly, a central government that does not necessarily have a strong understanding of local conditions inhibits communication and coordination across scales. Thirdly, for reasons of maintaining centralised control, each province reports to the centre, with a lack of official inter-provincial coordination mechanisms. This makes it difficult to respond to climate-related (and non-climate-related) health concerns that span provincial boundaries.

Thus, despite differences with governance arrangements with Myanmar and Cambodia, Vietnam also faces issues of coordination, emphasising that coordination issues transcend governance arrangements and geographies. But while, for example, Myanmar has a relatively

strong health ministry and, being in a period of transition, open to alternative ways of doing things, Vietnam has a well-established bureaucracy that is resistant to change (e.g. Benedikter 2016), and a relatively weak health sector. Therefore, approaches to encouraging and supporting coordination in Vietnam must differ to approaches suitable for other countries in the region. This paper recommends an approach that would address the three dimensions of coordination discussed, but acknowledges that the proposed solution would face numerous challenges from the Vietnamese bureaucracy because of paradigmatic shifts that would be required.

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# Chapter 4 Publication

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# 4.1 Abstract

This research examines the impact of three coordination dimensions on health sector adaptation to climate change in the Vietnamese Mekong Delta: cross-scale, cross-sectoral, and cross-boundary. While tasks are divided up between government ministries and departments in Vietnam, there is little collaboration on issues that span mandates. Similarly, while water flows in the Vietnamese Mekong Delta take resource management and health concerns across provincial boundaries, formal mechanisms for inter-provincial collaboration are lacking. While decentralisation efforts have sought to devolve authority and decision-making to lower levels, there is continued state-centred top-down policy making, and this limits collaborative coordination across scales. All three of these issues inhibit health sector adaptation to climate change in the Vietnamese Mekong Delta, and though these coordination issues are recognised by the Vietnamese government, to date there has been little success in addressing them. The authors hope to stimulate further debate and discussion of coordination problems, and conclude that despite some significant challenges, the South

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West Steering Committee could play a facilitating role coordinating climate change responses in health and other sectors across the Vietnamese Mekong Delta. As an analysis of governance, this research is applicable to other areas and sectors in Vietnam, as well as to other parts of South East Asia.

# 4.2 Introduction

As a result of climate change, precipitation patterns are already changing and impacting on freshwater availability (WHO 2015a), which has both direct and indirect impacts on human health (Costello et al. 2011). As examples, changing precipitation patterns can directly impact the spread of infectious disease, and more intense rainfall combined with outdated stormwater drainage systems can lead to higher levels of vector- and water-borne diseases (eg. USFS 2011, see also Rasul 2014). Christopoulos et al. (2012: 310) described the importance of different sectors collaborating to develop "tailor-made solutions" that "can provide local traction and address [both] socio-economic and environmental tensions". Across scales, the IPCC (2014c) noted that national government coordination of sub-national adaptation efforts through mechanisms such as policies and legal frameworks as well as financial support and provision of information enhances planning and implementation of adaptation measures. Similarly limited governance coordination is observed to undermine adaptation efforts (Haines-Young and Potschin 2008, see also Cash et al. 2006). Coordination between local government and higher levels of government can also assist with coordination between local administrative areas, reducing development and planning conflicts (Baker et al. 2012). For Vietnam, cross-scale, cross-sectoral and cross-boundary coordination issues are of particular importance because human health in developing countries is likely to be more severely impacted by climate change than in other parts of the world (Lesnikowski et al. 2013), and climate change impacts in the Vietnamese Mekong Delta, for example, are expected to be particularly severe (Tran et al. 2015).

This paper is written to stimulate debate about the importance of coordination between sectors, between provinces, and between scales to support health sector adaptation to climate change. The paper builds on theoretical contributions that argue the importance of coordination for adapting to climate change, and proposes a possible longer-term solution to improve health sector adaptation in the Vietnamese Mekong Delta that addresses all three

coordination dimensions. In this paper, adaptation to climate change, in human societies, means to either "exploit beneficial opportunities", or "moderate harm" that is brought about by a changing climate (IPCC 2014b: 118). Coordination refers to both the distribution of tasks among actors and collaborative action of two or more actors to achieve agreed goals. The former of these is referred to in this paper as functional cooperation, and the latter as collaborative cooperation. The three dimensions of coordination examined in this research are summarised in Table 4.1, below:

Table 4.1: Dimensions of Coordination

Dimension of Coordination	Description	Examples in Literature		
Cross-scale	Interactions between government mechanisms at different levels, for example between the national and provincial levels.	(Cash et al. 2006, Haines-Young and Potschin 2008, IPCC 2014b)		
Cross-boundary	Interactions that occur between administratively and/or politically distinct places to deal with environmental issues such as climate change impacts	(Truong 2011, Baker <i>et al.</i> 2012, Nguyen 2012		
Cross-sectoral	Interactions between government sectors such as health and environment	(USFS 2011, Christopoulos <i>et al.</i> 2012)		

Within Vietnam it is important to clarify the nature of coordination. While Vietnamese government documents such as Vietnam's Intended Nationally Determined Contribution (INDC), for example, acknowledge the need for more effective coordination between ministries and localities, there is no clear description of what effective coordination means (e.g. GOV 2015a).

This research has wide-reaching implications, with a review of INDCs and national communications to the UNFCCC from South East Asian countries indicating that Vietnam has been the most proactive country in the region in terms of developing adaptation policies, strategies and plans including sectoral adaptation strategies at the national level, and provincial level adaptation plans. This makes Vietnam policy making a model from which other countries may choose to learn, both for the positive aspects and to help them avoid some of the challenges that Vietnam has faced.

The research was informed by systems theory and resilience thinking. Systems theory is premised on the idea that systems have distinct boundaries that insulate them from external influences. In relation to governance, systems theory consists of factors such as feed-back loops and communication and control mechanisms, as well as allowing for changes in governance paradigms: for example, moving from centrally controlled governments to governance through a variety of techniques and instruments (see Esmark 2011). Resilience thinking is geared towards adaptability to continuously changing circumstances, rather than trying to achieve an ideal and static end state. In other words resilience is the "capacity to change in order to maintain the same identity" (Folke et al. 2010: 3). To date, responding to environmental changes and challenges in the Vietnamese Mekong Delta has been weighted towards infrastructure construction and other hard responses that lack this flexibility (Garschagen 2010, Garschagen and Kraas 2011), whereas resilience approaches are suited to sustainably responding to a continuously changing climate. The combination of resilience thinking and systems theory in this research reflects changes currently taking place in Vietnamese governance as well as further changes that could better facilitate health sector adaptation to climate change.

# 4.3 Literature review

Below is a review of the literatures on health and climate change and on adaptation across boundaries, scales and sectors. This is followed by a description of research methods and limitations, then research results are presented. Finally the discussion focusses on existing coordination gaps and constraints, as well as future prospects for collaborative cooperation for health sector adaptation to climate change in the Vietnamese Mekong Delta.

#### 4.3.1 Health and climate change

In the 2014 Intergovernmental Panel on Climate Change (IPCC) report, Smith *et al.* (2014) reported that human health will be sensitive to changes in temperature and precipitation, including through droughts, floods and heatwaves made worse by climate change. In addition to resultant direct health effects, there will be indirect human health effects resulting from crop failures, changing patterns of disease, and population displacement, highlighting the cross-sectoral nature of climate change impacts. The difficulties in responding to these impacts is magnified where there is a lack of policy coordination across sectors (e.g. Huang *et* 

al. 2011). For countries that have poor infrastructure, high levels of poverty and inequality as well as significant public health challenges, health resources will be particularly strained by climate change impacts (eg. Lesnikowski et al. 2013), and the impacts of climate change are expected to further disadvantage poor and marginalised populations (eg. Marmot 2007). A further cross-sectoral impact is that health challenges also inhibit economic development, as there are direct economic costs in treatment and indirect costs because ill workers are less productive (eg. Smith et al. 2014, see also Gerdham and Ekam 2005 for links links between environmental determinants, human health and household level economic outcomes).

The Mekong Delta is expected to be severely affected by climate change impacts (Tran et al. 2015), however vulnerability is a function both of physical impacts and the ability of affected populations to adapt (Yusuf and Francisco 2009). The population of the Vietnamese Mekong Delta is predominantly rurally-based, with many people living in poverty and having low levels of education (e.g. McElwee 2010). This makes the population of the delta highly vulnerable to the increasing frequency of typhoons and frequent flooding of low-lying coastal areas that are associated with climate change (as well as to the resultant increase in vector-, water- and food-borne diseases) (McElwee 2010; see also McMichael et al. 2003 and Gamble et al. 2016 for descriptions of cross-sectoral climate change impacts on human health). Increased hospitalisations for diarrhoeal diseases in the Vietnamese Mekong Delta are already associated with periods of high temperature, humidity and peaks in rainfall (Phung et al. 2015), and diseases related to frequent heat waves such as respiratory infections are also increasing in the region (Benedikter 2014). Other regional analyses also highlight links between a warmer, more variable climate, and adverse health effects, which will impact the poor most significantly, particularly women and children (Mackay and Russell 2011).

# 4.3.2 Adaptation across boundaries, scales and sectors

Adaptation can happen in a variety of ways and at a range of scales, and is often motivated by extreme events and increased climate variability rather than by long-term trends (Bierbaum *et al.* 2013). At the most local level, adaptations to climate change tend to be coping measures that cost little. More expensive longer-term adaptation planning at the local level is less likely to occur autonomously without incentives from national governments or the private sector (Porter *et al.* 2014), and, in the case of developing countries, international adaptation financing. This highlights the importance of cross-scale coordination, and there is

recognition in the literature that good cross-scale governance links support climate change adaptation, with decisions required at global, national, regional and local levels (e.g. Armitage 2007, Termeer *et al.* 2010). Termeer *et al.* (2010) argued that there are costs of coordinating across scales, but despite these costs, Cash *et al.* (2006) observed that recognising issues at different scales enables easier identification of problems, and hence pathways to resolve them. The cross-scale processes involved in managing environment and health in the Vietnamese Mekong Delta make cross-scale governance an important concern (see Tai 2015: 2047 for arguments on the importance of cross-scale governance dynamics).

Vietnam has made commitments under the United Nations Framework Convention on Climate Change (UNFCCC) (for examples see Table 4.2), and while communications to the UNFCCC are not directly implementable as policies, they link to the development of national policies, strategies and plans. Nationally, Vietnam has a variety of over-arching climate change policies such as the National Target Program to Respond to Climate Change (NTP-RCC) (GOV 2008), as well as sectoral plans that incorporate climate change considerations. While national governments provide support such as policy frameworks, the sub-national scale plays a fundamental role in ensuring adaptation actions are tailored to local circumstances (Snover *et al.* 2007, UNDP 2007). Similarly, Galarraga *et al.* (2009) argued that sub-national organisations can make significant contributions because their greater awareness of local conditions combined with greater flexibility allow them to take decisive, targeted actions in response to climate change (see also Parkes *et al.* 2010).

In line with these arguments, and under requirements of the NTP-RCC, each province in Vietnam has developed its own climate change adaptation action plan. Despite this, in the Vietnamese Mekong Delta, provincial adaptation plans do not pay adequate attention to cross-boundary cooperation, even where doing so could support longer-term economic growth and sustainable development (Truong 2011, Nguyen 2012). Baker *et al.* (2012) noted the importance of coordination between local government areas in Queensland, Australia, to help prevent conflicts as adaptation policies are developed and implemented. In Vietnam, administrative boundaries between provinces combined with a lack of regional level databases, which would provide the scientific foundation for action as well as academic

research, have constrained adaptation to climate change across the Vietnamese Mekong Delta (Nguyen 2012, Tran *et al.* 2015).

One factor that continues to influence cross-scale governance dynamics in Vietnam is the decentralisation program, which forms a part of Vietnam's Doi Moi reforms (United Cities and Local Governments 2009). The Doi Moi reforms were instituted by the Government of Vietnam, beginning in 1981, to transition from a centrally planned to a market-based economy (Irvin 1995). The decentralisation process was accelerated in the year 2000, when the Vietnamese National Assembly resolved to transfer responsibilities from central to local governments wherever possible (Fritzen 2006). The World Bank (2015) reported that fiscal decentralisation has been successful, but Vu (2012) observed that the decentralisation reforms are not meeting government expectations, and described a 'top-down' decentralisation in Vietnam, with government functions devolved on the basis of tasks for which higher levels of government should not be responsible. In contrast, bottom-up decentralisation requires higher-level government to take responsibility for tasks or functions that lower levels are not equipped to fulfil. Vu (2012) argued further that Vietnam lacks some of the fundamental prerequisites for successful decentralisation, such as transparency and accountability, resourcing of provinces, as well as uneven distribution of fiscal, political and administrative decentralisation. Christoplos et al. (2017) and Garschagen (2016) both noted the paradox of central government attempts to empower sub-national levels while at the same time retaining tight overall policy control. (Garschagen 2016) emphasised these tensions relative to national development and (Christoplos et al. 2017) discussed the importance of local level participation and ownership over adaptation to climate change. Achieving local ownership could be difficult however, given Benedikter's (2016) observation of persistent rigidity of state planning and budgeting processes combined with top-down resource allocation. Similarly, Gainsborough et al. (2009) noted top-down, state-centred policy making, which is also evident through Hansson's (2003) description of the government's strained relationship with civil society. Likewise, Benedikter (2014) observed that large-scale operations in Vietnam tend to exclude local government agencies and communities. The central government's desire to retain tight control undermines cross-scale coordination efforts, including for health sector adaptation to climate change.

Further to the above observations, both Thayer (1995) and Fforde (2011) observed a lack of political change in Vietnam's decentralisation. Compounding this systemic rigidity is MacLean's (2013) argument that bureaucratic self-interest has led to a 'paper-based' reality in government documentation that does not reflect 'on-the-ground' reality. While the government is active in developing and adopting policies, differences between the paper reality and grassroots experiences of poor implementation and a lack of resources means that adopted policies often do not achieve intended outcomes. Because addressing climate change impacts involves cross-scale, cross-boundary and cross-sectoral issues, new policies are not enough. Vietnam will need to make structural and philosophical shifts to enable climate-related policies to achieve desired results.

One shift that could be made can be seen in Dannevig and Aall's (2015) argument that regional-scale governance can be an appropriate level to facilitate communication and coordination, particularly between local contextual knowledge and expert adaptation knowledge. Regional coordination in Vietnam, especially coordination of climate change in the Vietnamese Mekong Delta, remains academically under-explored. There is some research in Vietnamese academic journals but little information in international English language journals. There is broad agreement in the existing literature that coordination at the subnational regional level in the Vietnamese Mekong Delta is of high importance, particularly in the face of market pressures and the continuing international integration of Vietnam's economy, with the associated exchanges of culture, labour migration and environmental challenges (Ho and Le 2012, Nguyen 2012, Tran et al. 2015). According to Nguyen (2012) the Vietnamese government has a legal framework that supports regional coordination including coordination regulations, coordinating groups, and management instruments such as plans and strategies. Tran et al. (2015) assessed climate change impacts and argued that actions focussing on the long-term are urgently required, and that regional, inter-regional and national level action and coordination are fundamental to sustainable development. Despite existing regulations and management instruments, Tran et al. (2015) identified the South West Steering Committee (SWSC) as the only regional governance mechanism in the delta. They proposed a specialised climate change coordination office be established under the authority of the SWSC, with funding from the central budget and international donors. This research furthers the work of Tran et al. (2015) by using the health sector as a case-study to examine ways to improve collaborative cooperation across sectors, boundaries and scales in the Vietnamese Mekong Delta.

# 4.4 Methods and limitations

Using public health in the Vietnamese Mekong Delta as a focus area, this research examines the role that the three dimensions of coordination, outlined in Table 4.1, can and do play in supporting climate change adaptation. While Vietnam has been proactive in policy development, its poor record of policy implementation (e.g. Tran 2016 argued that lack of understanding of adaptation measures on the part of provincial environmental and agricultural officials undermines climate change policy implementation) means that policy analysis alone does not provide a clear picture of the coordination of health sector adaptation to climate change. For this reason, the research presented in this paper uses data from indepth semi-structured interviews to guide and add depth to the policy analysis and to help highlight areas where there is a mismatch between 'on-the-ground' reality and the 'paper-reality' of policy frameworks. The analysis began with the coding of themes that emerged from the interviews. The policies were then examined in light of these themes.

In order to help mitigate any bias effects, the researchers interviewed officials from a variety of levels within government as well as from a variety of organisations working outside of government. To promote trust and encourage interviewees to openly share their insights, the researchers relied on personal introductions to meet interviewees. Beyond this, interviewees were advised that where they did not feel comfortable answering questions they were not obliged to answer, and were advised that all interviews would be treated as confidential and anonymous. Despite this, it was observed that junior staff within government agencies were more open than senior officials to discussion of problems and concerns that they saw. The researchers also interviewed recently retired directors of national level government agencies, and these individuals were more willing to share their views and perspectives than currently employed senior officials. Officials at the provincial level and personnel from non-government and international organisations were generally quite open to discussion of both positive and negative aspects of climate change adaptation governance.

Interviews were conducted with environment and health ministry officials, as well as with personnel from non-government organisations (NGOs) and international organisations. The

interviews were used to explore issues of adaptation coordination, in the context of Vietnam's adaptation policy framework, and particularly to get expert viewpoints on government policies. Fourteen interviews were conducted with officials in government offices, in both national and provincial positions across the health and environment ministries. In addition, fourteen officials from non-government and international organisations were interviewed to further illuminate coordination issues relating to health and adaptation.

Interviews were conducted in English, and varied in length from 24 minutes to 81 minutes, with an average interview length of 54 minutes. Interview data was transcribed, and each transcript was read to identify themes. Data on themes common across interviews was collated manually. Collated data was then reviewed for sub-themes and analysed in the context of the policies, strategies and plans that were reviewed. Each interviewee was ascribed a code which has been used in this paper to cite interviews. For example, data provided by interviewee number five is cited as (#05).

The policy review included relevant national and provincial level strategies and plans, as well as international agreements through processes such as the UNFCCC. The policies, strategies and plans reviewed are presented in Table 4.2, below.

The study had some limitations. Provincial and departmental climate change action plans are not publicly available, however the research team procured provincial action plans for 10 out of the 13 Mekong Delta provinces. Further research and analysis of departmental action plans would add depth to the knowledge of Vietnamese governance systems and their ability to deliver sustainable climate change adaptation actions, particularly in relation to cross-sectoral, cross-boundary and cross-scale coordination.

Research methodologies do influence interpretation of data. In this case, the focus of systems theory on communication and control mechanisms and feedback loops and novel ways to alter these may have induced researchers to underplay obstacles and constraints associated with entrenched bureaucratic systems. Similarly, resilience thinking's focus on 'changing to remain the same', could limit the ability of the researchers to see the extent to which bureaucratic systems can be resistant to change.

# 4.5 Results

In the results section of this paper relevant international agreements, national strategies, as well as regional and provincial plans are outlined with respect to their coordination and health aspects, with interview data adding depth. The discussion follows the results, analysing gaps and inconsistencies that impact on coordination of health sector adaptation in the delta.

#### 4.5.1 International communications and commitments

Vietnam has submitted two national communications to the UNFCCC (MONRE 2003, 2010). In its section on climate change impacts and adaptations, Vietnam's second national communication to the UNFCCC has a five and a half page sub-section dealing with impacts on human health, with three of these pages on adaptation measures, including detail of time horizons for adaptations (MONRE 2010: 85-90). Some adaptations are directly focussed on the health sector, and the document also highlights links between health and other sectors such as water resources, the coastal zone, agriculture and energy/transportation, thus highlighting the need for cross-sectoral coordination. Similarly, Vietnam's INDC highlights human health as a priority area in Vietnam's response to climate change. It also acknowledges that coordination between ministries and between localities is lacking in effectiveness (GOV 2015a). Despite the priority ascribed to the health sector in Vietnam's INDC and second national communication, the health ministry was not one of the eleven ministries cited as having contributed to Vietnam's Initial Biennial Updated Report to the UNFCCC (MONRE 2014: 31), suggestive of the paper/reality divide.

# 4.5.2 National policies and strategies

The Vietnamese government has developed a number of national policies to support efforts to deal with climate change. In 2008 the NTP-RCC was published, followed by the National Climate Change Strategy (NCCS) in 2011 and the National Action Plan on Climate Change (NAP-CC) for the period 2012-2020 (GOV 2008, 2011, 2012). Along with Central Party Committee resolutions (eg. Central Party Committee 2013), these documents identify human health as a priority area, in alignment with both the second national communication to the UNFCCC and Vietnam's INDC. These documents also reference coordination or collaboration among sectors and localities, but do not elaborate on what coordination and collaboration mean in practice.

Table 4.2: Adaptation and Health-related Laws, Processes, Agreements, Strategies, Policies and Plans

INTERNATIONALLY DRIVEN					
Reference	Title	Year	Authority/Agreement		
(MONRE 2003)	Initial National Communication	Submitted 2003	United Nations		
			Framework Convention		
			on Climate Change		
			(UNFCCC)		
(MONRE 2010)	Second National Communication	Submitted 2010	UNFCCC		
(MONRE 2014)	Initial Biennial Updated Report (IBUR)	Submitted 2014	UNFCCC		
(GOV 2015a)	Intended Nationally Determined Contribution (INDC)	Submitted 2015	UNFCCC		
NATIONAL LAWS, PROCESSES, STRATEGIES AND PLANS					
Reference	Title	Year	Authority		
(GOV 2011)	National Climate Change Strategy (NCCS)	2011	Government of Vietnam		
(GOV 2008)	National Target Program to Respond to Climate Change (NTP-RCC)	2008	Government of Vietnam		
(GOV 2012)	National Action Plan on Climate Change (NAP-CC)	2012	Government of Vietnam		
(GOV 2002)	Budget Law	2002	Government of Vietnam		
(GOV 2015b)	Budget Law	2015	Government of Vietnam		
(GOV 2014)	National Socio-Economic Development Plan	2014	Government of Vietnam		
(MoH 2010)	Ministry of Health Action Plan to Address Climate Change	2010 - 2015	The Ministry of Health		
N/A	National Environmental Health Action Plan (NEHAP)	Rejected (by	Regional Forum on		
	,	parliament) 2012.	Environmental Health		
		Rejected (by	(RFEH)		
		Environment			
		Minister) 2015			
	SS, STRATEGIES AND PLANS				
Reference	Title	Year	Authority		
(GOV 2016)					
(22. 2010)	Regulation for Pilot Coordination for Regional Socio- economic Development in the Mekong Delta	2016	Government of Vietnam		
(GOV & GOTN	economic Development in the Mekong Delta Mekong Delta Plan: Long-term Vision and Strategy for	2013	Government of Vietnam		
	economic Development in the Mekong Delta		Government of Vietnam and Government of the		
(GOV & GOTN 2013)	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta		Government of Vietnam		
(GOV & GOTN 2013) PROVINCIAL LEVE	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta  L PLANS AND STRATEGIES	2013	Government of Vietnam and Government of the Netherlands		
(GOV & GOTN 2013) PROVINCIAL LEVE Reference	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta  L PLANS AND STRATEGIES  Title	2013 Year	Government of Vietnam and Government of the Netherlands  Authority		
(GOV & GOTN 2013)  PROVINCIAL LEVE Reference (Dong Thap PPC 2011)	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta  L PLANS AND STRATEGIES  Title  Provincial Action Plans to Respond to Climate Change for Dong Thap Province	2013	Government of Vietnam and Government of the Netherlands  Authority The people's committee of Dong Thap		
(GOV & GOTN 2013)  PROVINCIAL LEVE Reference (Dong Thap PPC	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta  L PLANS AND STRATEGIES  Title  Provincial Action Plans to Respond to Climate Change	2013 Year	Government of Vietnam and Government of the Netherlands  Authority  The people's committee		
(GOV & GOTN 2013)  PROVINCIAL LEVE Reference (Dong Thap PPC 2011) (Kien Giang PPC	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta  L PLANS AND STRATEGIES  Title  Provincial Action Plans to Respond to Climate Change for Dong Thap Province  Provincial Action Plans to Respond to Climate Change	2013 <b>Year</b> 2011	Government of Vietnam and Government of the Netherlands  Authority The people's committee of Dong Thap The people's committee		
(GOV & GOTN 2013)  PROVINCIAL LEVE Reference (Dong Thap PPC 2011) (Kien Giang PPC 2013)	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta  L PLANS AND STRATEGIES  Title  Provincial Action Plans to Respond to Climate Change for Dong Thap Province  Provincial Action Plans to Respond to Climate Change for Kien Giang Province	2013 <b>Year</b> 2011 2013	Government of Vietnam and Government of the Netherlands  Authority  The people's committee of Dong Thap  The people's committee of Kien Giang		
(GOV & GOTN 2013)  PROVINCIAL LEVE Reference (Dong Thap PPC 2011) (Kien Giang PPC 2013) (Can Tho PPC	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta  L PLANS AND STRATEGIES  Title  Provincial Action Plans to Respond to Climate Change for Dong Thap Province  Provincial Action Plans to Respond to Climate Change for Kien Giang Province  Provincial Action Plans to Respond to Climate Change for Kien Giang Province	2013 <b>Year</b> 2011 2013	Government of Vietnam and Government of the Netherlands  Authority The people's committee of Dong Thap The people's committee of Kien Giang The people's committee		
(GOV & GOTN 2013)  PROVINCIAL LEVE Reference (Dong Thap PPC 2011) (Kien Giang PPC 2013) (Can Tho PPC 2010) (Bac Lieu PPC 2012)	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta  Letter Plans and Strategies  Title  Provincial Action Plans to Respond to Climate Change for Dong Thap Province  Provincial Action Plans to Respond to Climate Change for Kien Giang Province  Provincial Action Plans to Respond to Climate Change for Can Tho Province	2013  Year 2011 2013 2010	Government of Vietnam and Government of the Netherlands  Authority The people's committee of Dong Thap The people's committee of Kien Giang The people's committee of Can Tho		
(GOV & GOTN 2013)  PROVINCIAL LEVE Reference (Dong Thap PPC 2011) (Kien Giang PPC 2013) (Can Tho PPC 2010) (Bac Lieu PPC 2012) (An Giang PPC	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta  L PLANS AND STRATEGIES  Title  Provincial Action Plans to Respond to Climate Change for Dong Thap Province  Provincial Action Plans to Respond to Climate Change for Kien Giang Province  Provincial Action Plans to Respond to Climate Change for Can Tho Province  Provincial Action Plans to Respond to Climate Change for Bac Lieu Province  Provincial Action Plans to Respond to Climate Change for Bac Lieu Province	2013  Year 2011 2013 2010	Government of Vietnam and Government of the Netherlands  Authority The people's committee of Dong Thap The people's committee of Kien Giang The people's committee of Can Tho The people's committee of Bac Lieu The people's committee		
(GOV & GOTN 2013)  PROVINCIAL LEVE Reference (Dong Thap PPC 2011) (Kien Giang PPC 2013) (Can Tho PPC 2010) (Bac Lieu PPC 2012) (An Giang PPC 2010)	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta  LPLANS AND STRATEGIES  Title  Provincial Action Plans to Respond to Climate Change for Dong Thap Province  Provincial Action Plans to Respond to Climate Change for Kien Giang Province  Provincial Action Plans to Respond to Climate Change for Can Tho Province  Provincial Action Plans to Respond to Climate Change for Bac Lieu Province  Provincial Action Plans to Respond to Climate Change for Bac Lieu Province  Provincial Action Plans to Respond to Climate Change for An Giang Province	2013  Year 2011 2013 2010 2012 2010	Government of Vietnam and Government of the Netherlands  Authority  The people's committee of Dong Thap  The people's committee of Kien Giang  The people's committee of Can Tho  The people's committee of Bac Lieu  The people's committee of An Giang		
(GOV & GOTN 2013)  PROVINCIAL LEVE Reference (Dong Thap PPC 2011) (Kien Giang PPC 2013) (Can Tho PPC 2010) (Bac Lieu PPC 2012) (An Giang PPC 2010) (Ben Tre PPC	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta  Leta Plans And Strategies  Title  Provincial Action Plans to Respond to Climate Change for Dong Thap Province  Provincial Action Plans to Respond to Climate Change for Kien Giang Province  Provincial Action Plans to Respond to Climate Change for Can Tho Province  Provincial Action Plans to Respond to Climate Change for Bac Lieu Province  Provincial Action Plans to Respond to Climate Change for An Giang Province  Provincial Action Plans to Respond to Climate Change for An Giang Province	2013  Year 2011  2013  2010  2012	Government of Vietnam and Government of the Netherlands  Authority The people's committee of Dong Thap The people's committee of Kien Giang The people's committee of Can Tho The people's committee of Bac Lieu The people's committee of An Giang The people's committee		
(GOV & GOTN 2013)  PROVINCIAL LEVE Reference (Dong Thap PPC 2011) (Kien Giang PPC 2013) (Can Tho PPC 2010) (Bac Lieu PPC 2012) (An Giang PPC 2010) (Ben Tre PPC 2011)	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta  LPLANS AND STRATEGIES  Title  Provincial Action Plans to Respond to Climate Change for Dong Thap Province  Provincial Action Plans to Respond to Climate Change for Kien Giang Province  Provincial Action Plans to Respond to Climate Change for Can Tho Province  Provincial Action Plans to Respond to Climate Change for Bac Lieu Province  Provincial Action Plans to Respond to Climate Change for An Giang Province  Provincial Action Plans to Respond to Climate Change for An Giang Province  Provincial Action Plans to Respond to Climate Change for An Giang Province	2013  Year 2011  2013  2010  2012  2010  2011	Government of Vietnam and Government of the Netherlands  Authority The people's committee of Dong Thap The people's committee of Kien Giang The people's committee of Can Tho The people's committee of Bac Lieu The people's committee of An Giang The people's committee of Ben Tre		
(GOV & GOTN 2013)  PROVINCIAL LEVE Reference (Dong Thap PPC 2011) (Kien Giang PPC 2013) (Can Tho PPC 2010) (Bac Lieu PPC 2012) (An Giang PPC 2010) (Ben Tre PPC 2011) (Ca Mau PPC	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta  LPLANS AND STRATEGIES  Title  Provincial Action Plans to Respond to Climate Change for Dong Thap Province  Provincial Action Plans to Respond to Climate Change for Kien Giang Province  Provincial Action Plans to Respond to Climate Change for Can Tho Province  Provincial Action Plans to Respond to Climate Change for Bac Lieu Province  Provincial Action Plans to Respond to Climate Change for An Giang Province  Provincial Action Plans to Respond to Climate Change for Ben Tre Province  Provincial Action Plans to Respond to Climate Change for Ben Tre Province	2013  Year 2011 2013 2010 2012 2010	Government of Vietnam and Government of the Netherlands  Authority  The people's committee of Dong Thap  The people's committee of Kien Giang  The people's committee of Can Tho  The people's committee of Bac Lieu  The people's committee of An Giang  The people's committee of Ben Tre  The people's committee		
(GOV & GOTN 2013)  PROVINCIAL LEVE Reference (Dong Thap PPC 2011) (Kien Giang PPC 2013) (Can Tho PPC 2010) (Bac Lieu PPC 2012) (An Giang PPC 2010) (Ben Tre PPC 2011) (Ca Mau PPC 2012)	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta  LPLANS AND STRATEGIES  Title  Provincial Action Plans to Respond to Climate Change for Dong Thap Province  Provincial Action Plans to Respond to Climate Change for Kien Giang Province  Provincial Action Plans to Respond to Climate Change for Can Tho Province  Provincial Action Plans to Respond to Climate Change for Bac Lieu Province  Provincial Action Plans to Respond to Climate Change for An Giang Province  Provincial Action Plans to Respond to Climate Change for An Giang Province  Provincial Action Plans to Respond to Climate Change for Ben Tre Province  Provincial Action Plans to Respond to Climate Change for Ben Tre Province	2013  Year 2011  2013  2010  2012  2010  2011  2012	Government of Vietnam and Government of the Netherlands  Authority  The people's committee of Dong Thap  The people's committee of Kien Giang  The people's committee of Can Tho  The people's committee of Bac Lieu  The people's committee of An Giang  The people's committee of Ben Tre  The people's committee of Ben Tre  The people's committee of Ca Mau		
(GOV & GOTN 2013)  PROVINCIAL LEVE Reference (Dong Thap PPC 2011) (Kien Giang PPC 2013) (Can Tho PPC 2010) (Bac Lieu PPC 2012) (An Giang PPC 2010) (Ben Tre PPC 2011) (Ca Mau PPC 2012) (Soc Trang PPC	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta  LPLANS AND STRATEGIES  Title  Provincial Action Plans to Respond to Climate Change for Dong Thap Province  Provincial Action Plans to Respond to Climate Change for Kien Giang Province  Provincial Action Plans to Respond to Climate Change for Can Tho Province  Provincial Action Plans to Respond to Climate Change for Bac Lieu Province  Provincial Action Plans to Respond to Climate Change for An Giang Province  Provincial Action Plans to Respond to Climate Change for Ben Tre Province  Provincial Action Plans to Respond to Climate Change for Ben Tre Province  Provincial Action Plans to Respond to Climate Change for Ca Mau Province  Provincial Action Plans to Respond to Climate Change for Ca Mau Province	2013  Year 2011  2013  2010  2012  2010  2011	Government of Vietnam and Government of the Netherlands  Authority  The people's committee of Dong Thap  The people's committee of Kien Giang  The people's committee of Can Tho  The people's committee of Bac Lieu  The people's committee of An Giang  The people's committee of Ben Tre  The people's committee of Ca Mau  The people's committee		
(GOV & GOTN 2013)  PROVINCIAL LEVE Reference (Dong Thap PPC 2011) (Kien Giang PPC 2013) (Can Tho PPC 2010) (Bac Lieu PPC 2012) (An Giang PPC 2010) (Ben Tre PPC 2011) (Ca Mau PPC 2012)	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta  LPLANS AND STRATEGIES  Title  Provincial Action Plans to Respond to Climate Change for Dong Thap Province  Provincial Action Plans to Respond to Climate Change for Kien Giang Province  Provincial Action Plans to Respond to Climate Change for Can Tho Province  Provincial Action Plans to Respond to Climate Change for Bac Lieu Province  Provincial Action Plans to Respond to Climate Change for An Giang Province  Provincial Action Plans to Respond to Climate Change for An Giang Province  Provincial Action Plans to Respond to Climate Change for Ben Tre Province  Provincial Action Plans to Respond to Climate Change for Ben Tre Province	2013  Year 2011  2013  2010  2012  2010  2011  2012	Government of Vietnam and Government of the Netherlands  Authority  The people's committee of Dong Thap  The people's committee of Kien Giang  The people's committee of Can Tho  The people's committee of Bac Lieu  The people's committee of An Giang  The people's committee of Ben Tre  The people's committee of Ben Tre  The people's committee of Ca Mau		
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(GOV & GOTN 2013)  PROVINCIAL LEVE Reference (Dong Thap PPC 2011) (Kien Giang PPC 2013) (Can Tho PPC 2010) (Bac Lieu PPC 2012) (An Giang PPC 2010) (Ben Tre PPC 2011) (Ca Mau PPC 2012) (Soc Trang PPC 2011) (Tra Vinh PPC	economic Development in the Mekong Delta  Mekong Delta Plan: Long-term Vision and Strategy for a Safe, Prosperous and Sustainable Delta  LPLANS AND STRATEGIES  Title  Provincial Action Plans to Respond to Climate Change for Dong Thap Province  Provincial Action Plans to Respond to Climate Change for Kien Giang Province  Provincial Action Plans to Respond to Climate Change for Can Tho Province  Provincial Action Plans to Respond to Climate Change for Bac Lieu Province  Provincial Action Plans to Respond to Climate Change for An Giang Province  Provincial Action Plans to Respond to Climate Change for Ben Tre Province  Provincial Action Plans to Respond to Climate Change for Ca Mau Province  Provincial Action Plans to Respond to Climate Change for Ca Mau Province  Provincial Action Plans to Respond to Climate Change for Soc Trang Province  Provincial Action Plans to Respond to Climate Change for Soc Trang Province	2013  Year 2011  2013  2010  2012  2010  2011  2012  2011	Government of Vietnam and Government of the Netherlands  Authority  The people's committee of Dong Thap  The people's committee of Kien Giang  The people's committee of Can Tho  The people's committee of Bac Lieu  The people's committee of An Giang  The people's committee of Ben Tre  The people's committee of Ca Mau  The people's committee of Committee o		

The NTP-RCC provides the overarching framework for Vietnam's responses to climate change, setting out the directions for the development of both provincial level and sectoral adaptation action plans. It includes public health as a key area of concern and specifies that by 2015 "the mechanism for coordination among agencies responsible for climate change issues" will be perfected (GOV 2008, article III(4)(b)). Interviewees agreed that health-related impacts of climate change are cause for concern, noting increasing instances of floods, droughts and typhoons, and associated food security issues (e.g. #11, #20). While the prioritisation of human health is reiterated in the NCCS as well as in the NAP-CC, specific actions and targets are vague, in line with MacLean's (2013) observation of 'paper-based' realities resulting in vague policies. For example the list of projects in the NAP-CC gives the MoH responsibility for "upgrading" community healthcare systems in response to a changing climate, "strengthening" disease surveillance systems and "ensuring" food hygiene and safety, in the period 2013-2015 (GOV 2012, article II (A) (49)), while implications of issues linked to climate change, such as land subsidence in the Mekong Delta, are not considered in relevant strategies (#01). In accordance with NTP-RCC requirements, in 2010 the MoH published their climate change action plan for the period 2011-2015 (MoH 2010). This plan identifies climate change and infectious disease development as an area of particular concern. The plan has references to coordination across provincial boundaries, however these are vague and contradictory. The climate change health strategy for the period 2016-2020 is still awaiting approval (#21). In 2015, the MoH did issue a health sector action plan to respond to natural disasters for the period 2015-2020, which provides measures for the health sector to deal with natural disasters by region including the Vietnamese Mekong Delta. While there is an updated draft climate change strategy for health, interviewees expressed the view that the health ministry does not have a strong commitment to dealing with climate change, and that the health ministry is quite weak compared with other Vietnamese ministries (#04, #11, #20). Lack of clear evidence of links between health outcomes and climate change was also perceived as constraining health sector adaptation (#20, #27).

Both the NTP-RCC and the NCCS required government ministries to develop their own climate change action plans. Both government and non-government interviewees stressed the importance of cooperation and coordination across sectors (e.g. #19, #20), however current coordination appears limited to functional cooperation. For example, the Ministry of Natural

Resources and Environment (MONRE) and the Ministry of Planning and Investment (MPI) cooperate in a functional manner to screen climate change project proposals for technical suitability (a MONRE responsibility) before they are prioritised against other funding requests (an MPI responsibility), whereas collaborative cooperation between environment and health to achieve environmental health outcomes is lacking (#07, #19). Another example is that through the Regional Forum on Environment and Health, Vietnam has been encouraged to develop a National Environmental Health Action Plan (NEHAP) (#24). A MONRE vice-minister championed the original NEHAP, but this was rejected by Vietnam's Prime Minister in 2012. Subsequently the MONRE vice-minister retired and a revised NEHAP was rejected by the environment minister, who argued that MoH should take responsibility. More collaboration during development would have been more likely to bring out concerns about who should be responsible much earlier in the process. Government documents do refer to cross-sectoral coordination. For example the health sector action plan for natural disasters specifies that the MoH will coordinate regional programs with the participation of relevant ministries as well as provincial government bodies (MoH 2015a). The importance of effective crosssectoral coordination can be seen because of the related responsibilities of different agencies. For example, the Ministry of Agriculture and Rural Development (MARD) is the lead agency for the supply of water in rural areas, as well as for environmental sanitation. The MoH, by contrast, is the lead agency for promoting household sanitation and hygiene via the Health Environment Management Agency (HEMA), and the MONRE is responsible for climate change governance and integrated water resource management (World Bank and Water and Sanitation Program 2014).

# 4.5.3 Regional level

Within the Vietnamese Mekong Delta, cross-boundary coordination was seen by interviewees as key because of the inter-connected hydrology of the provinces (#01, #04). In line with this, in 2013 Vietnam developed the Mekong Delta Master Plan to coordinate and review sustainable development in the Vietnamese Mekong Delta. The Plan notes that for "future development and adaptation of the Mekong Delta" there should ideally be a legal entity that is "cross-sectoral in nature and capacity" and which would review "sectoral, departmental, provincial etc. plans" (GOV & GOTN 2013: 73). The Plan includes five references to human health. Subsequently, in 2014 the Vietnamese Government published the socio-economic

development plan for the Mekong Delta through 2020 (GOV 2014). This plan notes the importance of developing a regional-scale public health system, and designates Can Tho City as the centre for public health in the delta. Despite this, the MoH was not one of the nine ministries assigned as implementation agencies for this plan. Under the central communist party, the SWSC was established to coordinate actions across the Vietnamese Mekong Delta, and the Mekong Delta Master Plan gives the SWSC a coordination and monitoring role, as well as stating that the committee will assist ministries and provinces to implement the plan (GOV & GOTN 2013).

In April 2016 Prime Ministerial Decision No. 593/QD-TTg was published (GOV 2016). The decision included a regulation for Pilot Coordination for Regional Socio-economic Development in the Mekong Delta. Prior to its publication, international development partners supported its development (eg. MBFP 2016), and in April 2016, fifteen multilateral and bilateral development partners issued a joint statement supporting regional coordination in Vietnam, highlighting that, "[m]any important challenges for Viet Nam's development need to be addressed at a supra-provincial level" including, "[r]egional economic development, climate change adaptation, and regional infrastructure development" (Asian Development Bank et al. 2016: 1). Despite this, the regulation only mentions climate change three times. While the study of socio-economics and socio-economic development includes the health sector (e.g. Szirmai 2005), the only reference in the regulation that may relate to health is that the purpose includes to "improve livelihoods" and to "enhance the quality of life of local people" (GOV 2016, Article 2). The regulation gives MPI the lead role in coordinating socioeconomic development, however use of the term coordination appears to be limited to functional cooperation in pursuit of economic development. The pilot regulation gives the SWSC responsibility for collaborating with MPI on implementation of coordination activities and assisting with the final assessment and review of the pilot regulation. One possible reason for the choice of MPI over SWSC as lead is that Vietnam's budget laws of 2002 and 2015 exclude the regional level (GOV 2002, 2015b), which would make it difficult for the central government to delegate responsibility to a regional level governance mechanism such as the SWSC.

# 4.5.4 Provincial level

The Mekong Delta includes 13 of Vietnam's 63 provinces. Under the NTP-RCC and NCCS requirements, the 13 Mekong provinces have each developed a Provincial Action Plan to Respond to Climate Change (PAP-RCC). Ten of the 13 Mekong Delta provincial action plans were reviewed, as detailed in Table 4.2. Of these ten, nine included health-related actions in their detailed list of projects. Of these, the number of health-related projects ranged from 2-15% of the total projects, with proposed expenditures ranging from 0.003% (Kien Giang) to 5.38% (Bac Lieu) of total proposed expenditure (Bac Lieu PPC 2012, Kien Giang PPC 2013). Five of the ten provinces included some consideration of coordination. For example, the PAP-RCC of each of Dong Thap and Bac Lieu provinces acknowledged the necessity of working with neighbouring provinces to effectively respond to climate change impacts. Despite this, the lists of proposed projects in their action plans are provincial-scale projects that do not link with projects in other provinces (Dong Thap PPC 2011, Bac Lieu PPC 2012). The Ben Tre and Tra Vinh plans also included consideration of delta-wide (i.e. cross-boundary) coordination for coastal management and ecological protection, and the Soc Trang and Dong Thap plans mentioned both coordination within the province and delta-wide coordination as prerequisites to successful climate change adaptation (Tra Vinh PPC 2010, Ben Tre PPC 2011, Dong Thap PPC 2011, Soc Trang PPC 2011). The Bac Lieu plan also mentioned cross-sectoral coordination for search and rescue, however one interviewee described a climate change project with a focus on water-borne diseases in the delta that did not have representation from the Department of Health (DoH) because the Department of Agriculture and Rural Development (DARD) plays the key role in fresh water provision (#23). Despite many of the provincial plans referring to coordination, it was an issue that concerned interviewees for four primary reasons: i.) funding for each province is isolated from other provinces, ii.) provinces don't have any authority to direct activities of other provinces, iii.) there are no formal mechanisms to support cross-boundary coordination between provinces, and, iv.) coordination is generally viewed in Vietnam as the ability or authority to direct the activities of others (#01, #05, #15, #19, #28,).

The systems thinking philosophy on which this research was based highlighted a number of existing control mechanisms that limit collaborative coordination. For example, NGO personnel observed that coordination in Vietnamese public administration is interpreted as

direction and control. Similarly, one civil servant commented on the inability of provinces to coordinate because none had the authority to tell other provinces what to do, and within provinces "DONRE [Department of Natural Resources and Environment] planners have no leverage over the planning and investment decisions of other agencies" (Nguyen *et al.* 2015: 27). Indirect support for this view also came from comments of government personnel on the importance of mandates and division of roles, responsibilities and authorities. As described, these divisions support functional cooperation but are less helpful in encouraging and supporting collaborative cooperation.

# 4.6 Discussion

The purpose of this discussion section is twofold. Firstly, it explores gaps in policy and policy implementation that were highlighted through our analysis of policies and interview data. Secondly it builds on this exploration to suggest a possible solution to current gaps in collaborative cooperation for health sector adaptation to climate change in the Vietnamese Mekong Delta.

Coordinated governance processes are important for health sector adaptation to climate change in the Vietnamese Mekong Delta. For example, the provinces in the delta are connected to each other by the flow of the Mekong river and its various channels (#01, #05), and these flows can facilitate the spread of water- and vector-borne diseases. Expected changing rainfall patterns will influence rates of transmission and disease spreads. This highlights the linkages across both provinces and sectors as well as the links with climate change. In addition to the geographic and sectoral coordination mechanisms, national government policies, strategies and financing can all impact on the health sector and its ability to prepare for climate change impacts. This discussion section focusses on these three dimensions of coordination and to do so draws on policy analysis and interview data results from a range of scales, geographies and sectors. Existing collaborative coordination gaps and constraints are identified, and one possible longer-term solution to these is presented to stimulate further debate about coordination for health sector adaptation to climate change.

# 4.6.1 Current coordination gaps and constraints

There is a lack of coordination built into Vietnam's national legal framework. For example, the law on issuing of legal documents does not include any provisions that describe coordinating relationships between relevant bodies, and Vietnam does not have a "central agency to monitor the performance of [...] agencies in their enactment of laws and ordinances" (Thach 2014: 74). Additionally, Thach (2014) noted that improved coordination between national assembly committees and government ministries in assessing future projects would improve the quality of laws and ordinances. Given the top-down approach to governance that is still dominant in Vietnam (Gainsborough et al. 2009, Fforde 2011, Benedikter 2016), it is not surprising that lack of coordination at the level of the national assembly is mirrored at the ministry level. Further, central government efforts to retain tight policy control (Christoplos et al. 2017) inevitably lead to a strong degree of micromanagement. This micro-management can be seen in the view expressed by both those working within government and outside of government that coordination in Vietnam is the ability or authority to direct the actions of others (e.g. #01, #05, #15). This focus on control and authority can be seen in Garschagen's (2015: 613) observation that strategies to deal with floods in Can Tho City have not been developed because the cross-cutting nature of the problem means it "falls in between the compartmentalized responsibilities of the sectoral departments". The reliance on clear authority to act, combined with unclear coordination guidelines, increases the hurdles for improvements in all three coordination dimensions.

The Mekong Delta Master Plan highlights the need for an entity with cross-sectoral capabilities to oversee provincial and sectoral sustainable development plans (GOV & GOTN 2013). The plan follows on from central government concerns about provincial competition for economic development through foreign direct investment (FDI), which in the early 2000s led to over half of Vietnam's 63 provinces breaking central government investment policies in a "race to the bottom" (Vu et al. 2007: 1). Despite the development of the master plan the Vietnamese government does not have an existing regional presence (Nguyen 2012, Tran et al. 2015), and so current regional governance mechanisms rely on steering committees, such as the SWSC, which is a communist party committee that does not have its own financial and human resources, or decision-making authority in regard to regional linkages (Ho and Le 2012, Nguyen 2012). The master plan addresses this by tasking the SWSC to collaborate with MPI

for implementation, however this raises cross-scale coordination issues that are not considered in the plan.

While both the international level agreements and the national policies and strategies reviewed highlighted public health as a priority adaptation area, there are a number of key factors which inhibit and constrain health sector adaptation across the Vietnamese Mekong Delta. These factors are most visible at the provincial level. It is reasonable for the MARD, and consequently the DARD, to have responsibility for rural water supply. However, a lack of involvement of the DoH and the MoH in rural water supply, even in relation to projects focussed on water-borne diseases (#23), undermines Vietnam's ability to control these diseases, which have been identified as climate-sensitive because of the changing precipitation patterns that result from climate change. The lack of involvement of the health sector in areas that affect population health reflects the weakness of the health sector generally (#04, #11, #20). Higher prioritisation and resourcing (financial, human, regulations and systems) of the health sector in the delta would support climate change adaptation efforts, as healthier people are better equipped to deal with the shocks and changes that a changing climate will bring (e.g. Smyle 2014). Water-borne disease control is both a crosssectoral and a cross-boundary issue, because of the inter-connected nature of the hydrology across the Vietnamese Mekong Delta (#01, #05), and because of links to other areas such as storm water management. Cross-sectoral coordination issues exist at the national level as well: collaborative coordination between Vietnam's health and environment ministries to develop the NEHAP would have avoided a ministerial rejection that was based on concerns about where responsibility for its development lay.

# 4.6.2 One possible solution to regional coordination for health sector adaptation

Better coordination across boundaries, scales and sectors is closely linked to resilience thinking and the ability to modify practices and behaviours as the climate changes. Processes of collaborative action between sectors would mean that, for example, the DoH would work with the DARD to address issues around water-borne diseases. Processes supporting cross-boundary collaboration would result in projects in PAP-RCCs designed to synergise with those of neighbouring provinces. The existing Mekong Delta Master Plan is in line with this thinking with its acknowledgement of a need for cross-sectoral and cross-boundary coordination. (GOV & GOTN 2013). Despite this ideal, collaborative cooperation within the Vietnamese

bureaucracy is difficult because of the importance placed on mandates, which promote functional cooperation (e.g. #01, #07, #15), and also because of its resistance to change (Benedikter 2016). The use of resilience thinking in this context could support government officials from different departments to work together and develop strong understandings of each other's priorities and perspectives. This may appear to blur the individual ministerial mandates, but would not impact on the core of the government ministries or organisations involved. The manner in which mandates are described by interviewees is also suggestive of sectoral systems that are separate from external influence, and while systems thinking promotes the idea of boundaries, these should be chosen with care. A choice of system boundaries that is in closer alignment with natural systems and the lives of people living in the Mekong Delta would better support health sector adaptation to climate change. The health sector, and hence public health, would be likely to be a prime beneficiary of a welldesigned and implemented coordination mechanism. Making changes to established bureaucratic mechanisms will require significant time and energy, particularly because of deviations between reality as seen in government documents and 'on-the-ground' reality (MacLean 2013). For this reason it is important that these concerns are debated and discussed including among national leaders and decision-makers, who have to balance many priorities, and may be motivated by factors such as the economic benefits of better cross-sectoral, cross-boundary and cross-scale coordination.

Tran et al. (2015) have discussed regional coordination issues, and suggested a specialised climate change coordination office under the SWSC to develop climate change policies specifically targeting the Vietnamese Mekong Delta. Interviewees also saw the SWSC as a possible solution to coordinating climate change responses (#01, #15, #28), because existing weak regional linkage mechanisms combined with fragmented institutions inhibit the cross-sectoral and cross-boundary collaboration that could support health sector adaptation to climate change. Despite this, the SWSC would face some serious challenges in doing this. First, there would likely be significant opposition to proposals for SWSC to take on a role coordinating adaptation activities across the Vietnamese Mekong Delta from existing ministries such as MONRE and MARD, both of which have a large stake in climate change activities and associated finance. Second, the government aims to maintain a clear separation between the government and the communist party, which could make it difficult for the

SWSC, as a communist party committee, to gain support to fill an official governing role (#28). The third challenge links to control mechanisms, as considered in systems theory, because the SWSC does not have official authority over provincial authorities (#01), and in a context where coordination is viewed synonymously with the ability to direct control, this would be a likely obstacle. The use of systems theory and resilience thinking promotes optimism about overcoming these obstacles, however moving from a rigid hierarchical system to a system based on collaborative coordination would require a shift in organisational culture and philosophy within the bureaucracy, which could take years or decades to achieve (for example Gainsborough et al. 2009 argued that the dominating centralist government is very resistant to change). A final obstacle is that the regional level in Vietnam is excluded from the national budgetary laws. However even with limited funding, there could still be scope for the SWSC to facilitate collaboratively designed and implemented adaptation activities, as coordination does not necessarily require direct project implementation (e.g. Robinson and Gilfillan 2017 argued that supra-national regional organisations may serve their member states more effectively through support of national efforts including capacity development, rather than through direct project implementation.).

Despite these numerous challenges, the SWSC has advantages that would support a role facilitating regional collaborative cooperation, including for the health sector. The SWSC was established as a coordinating agency, and is assigned coordination tasks for both the master plan for the delta and the pilot regulation for socio-economic development. Its mandate would support a facilitation role (#05), and it has already been involved in adaptation initiatives such as the running of a workshop on adaptation for vulnerable areas (TalkVietnam 2015). The SWSC could support collaborative coordination across the delta by directly facilitating connections between the 13 Provincial Peoples' Committees (PPCs) (#01). This could also strengthen cross-sectoral collaboration because through the PPCs the SWSC has access to the provincial heads of line ministries. It could support cross-scale coordination because of its links downwards into the PPCs and provincial line departments, as well as upwards into the central government via the Deputy Prime Minister who is the head of the SWSC (Wyatt et al. 2012, also #01). As such, the SWSC could be a conduit for information to the national government on existing and likely future conditions as well as recommendations on ways to achieve cross-boundary and cross-sectoral co-benefits with adaptation activities

(Asian Development Bank *et al.* 2016, also #01). As a regional organisation with representation from across the delta it could balance the perspectives and interests of stakeholders from different places, scales and sectors. This could be particularly beneficial for the health sector because, despite established links between human health and economic development (e.g. Gerdtham and Ekman 2005, Smith *et al.* 2014), the health sector in Vietnam has not been prioritised to the same extent as other sectors (#04). A solution such as this would be in line with resilience thinking and systems theory as it is a novel approach that would require significant changes to the way governance is acted out in Vietnam without altering the core aspects of the communist state.

Despite the advantages that the SWSC could bring to a role facilitating collaborative coordination across sectors, provinces and scales in order to aid climate change adaptation, including for the health sector, the challenges are substantial and it is unlikely that the SWSC would be called upon in this way in the near future. The authors of this paper acknowledge this, and make the recommendation as a way of stimulating debate and discussion about governance coordination issues in the Vietnamese Mekong Delta, and particularly to recommend that the debate is not confined to modifications that remain within existing norms and procedures.

### 4.7 Conclusion

The purpose of this paper was to examine coordination of climate change adaptation in the health sector in the Vietnamese Mekong Delta. It makes three primary contributions to the academic literature on health sector adaptation. First, it highlights the difference between existing functional cooperation between Vietnamese government sectors, and the collaborative cooperation that would more effectively support adaptation to climate change. Second, this paper adds to the scant literature on coordination of climate change adaptation in Vietnam, and is the first research into coordination to support adaptation in Vietnam's health sector. The weakness of the health sector in Vietnam highlights the imbalances that result from poor cross-boundary, cross-sectoral and cross-scale collaborative cooperation in the Vietnamese Mekong Delta. Increasing the level of understanding of, and commitment to, collaborative cooperation will be required in order to improve adaptation outcomes in the health sector. The third contribution of this research is to propose the SWSC as a suitable

entity to facilitate collaborative cooperation for climate change adaptation in the Vietnamese Mekong Delta, including for the health sector. This proposed solution challenges current views on the role of this communist party committee, especially as the SWSC does not have authority delegated to it through decentralisation mechanisms or parliamentary processes. In order for the SWSC to fill this role it would need to source funding either through the national government or international donors, or to make use of diplomatic and persuasive means to facilitate collaborative cooperation between provinces and sectors. This second option could be a significant challenge in the Vietnamese context, where coordination is viewed synonymously with authority to direct the actions of others.

This research has focussed on health sector adaptation in the Vietnamese Mekong Delta, however the results will be useful for other sectors in Vietnam, such as the economic sector, which have faced inter-provincial issues such as the 'race to the bottom'. And because of Vietnam's lead on adaptation policy development in South East Asia, the research results should be of interest across the region.

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# Part C: Developing a Framework to Assess Regional Organisations Supporting National Level Adaptation

Part C of this thesis comprises one chapter, and follows from Part B, which highlighted coordination issues relating to adaptation and health in three of Southeast Asia's 11 countries. The three countries examined are each in different stages of development and have different governance characteristics, such as relative strength of the health sector (within the countries and compared across the region), rate of change of governance systems and process and degree of democratic rule. Despite this in each case lack of coordination, particularly across sectors and scales, was observed to constrain and limit adaptation and health responses. Therefore, despite the different approaches that would be required, it is reasonable to assume that ROs could support improved coordination in order to make adaptation and health actions across Southeast Asia more effective.

The research conducted at the national level was designed to explore governance issues relating to adaptation and health, and for this reason was based primarily on themes that emerged from in-depth semi-structured interviews with decision-makers. The research into ROs for this thesis was more directed, focussing on the effectiveness of ROs. However, a review of organisational effectiveness literature failed to identify a framework suitable for assessing RO support for national level adaptation. Part C of this thesis presents the research used to develop and test a framework for doing this. In order to ensure that the framework would be robust, and suitable for use across sectors and geographies, it was developed in the context of CCA among small island developing states in the Caribbean and Pacific regions.

# Chapter 5: Regional Organisations and Climate Change Adaptation in Small Island Developing States

# Introduction to Chapter 5

Chapter 5 of this thesis addresses the following research questions:

- How can we assess the effectiveness of regional organisations supporting climate change adaptation activities within nations?
- Do regional organisations operate at an appropriate scale to effectively support national level adaptation actions?

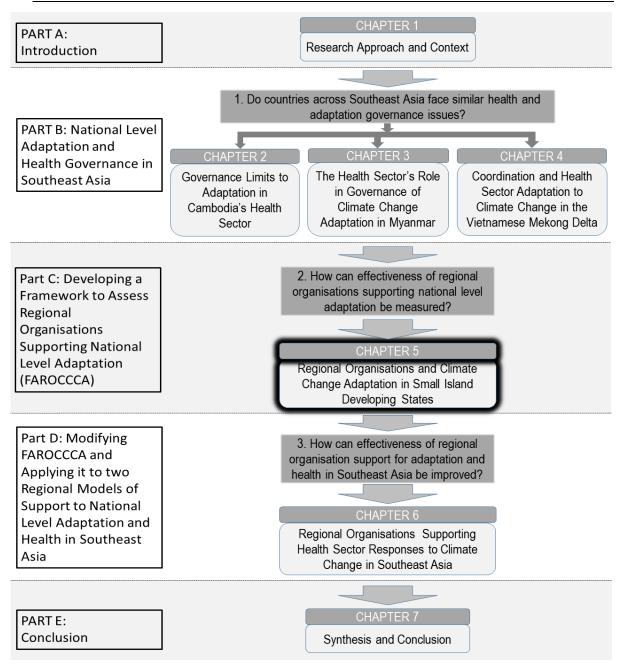


Figure 5.1: Thesis Process Diagram (highlighted chapter indicates current location in thesis)

The focus of Chapter 5 of this thesis was to develop a framework suitable for assessing regional organisation support in a CCA context. It was also necessary to trial, and demonstrate the utility of the framework thus developed. In order to undertake this trial and demonstration, the question about whether ROs are suitably placed to support national level CCA was addressed. The framework development, and its subsequent demonstration, took place in the context of small island developing states in the Caribbean and Pacific.

The framework was developed through desk-based research. The literatures reviewed for this portion of the paper included organisational effectiveness, public and private sector effectiveness as well as literature on international environmental regime effectiveness. The review highlighted a number approaches that have been used in evaluating organisational effectiveness such as stakeholder focussed, process focussed, results focussed and resourcing focussed. The framework developed here incorporated aspects of each of these, separated into organisational inputs, processes (projects or programs), and outputs.

The framework was then applied to three regional organisations supporting CCA in SIDS, one in the Caribbean, and two in the Pacific. Data to assess these case studies was gathered for each indicator in the framework from sources including project reports, organisational publications, independent evaluations, as well as curriculum vitae of project and organisation personnel. This data was further enriched with interview data from regional and national level climate change officials. Analysis of the data gathered highlighted that all three organisations assessed had project implementation weaknesses, indicating that the regional level may not be suitable for direct project implementation, and that ROs may be better suited to supporting the creation of a national level enabling environment for adaptation by, for example, supporting national capacity building.

Chapter 5 was co-authored, with an agreed attribution of 50% for each author. As noted in section 1.4, the attribution statement for the published text is included in Appendix 3.

# Chapter 5 Publication

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### 5.1 Abstract

Regional organisations play a central role in coordinating regional climate change adaptation responses across small island developing states (SIDS), 58 countries that are particularly vulnerable to climate change and its impacts. The effectiveness of these organisations in coordinating adaptation efforts is underexplored in the academic literature, and this paper helps to fill the gap. By developing the Framework for Assessing Regional Organisations Coordinating Climate Change Adaptation, it qualitatively assesses the adaptation-related inputs, projects/programs and outputs of the Caribbean Community Climate Change Centre, the Secretariat of the Pacific Community and the Secretariat of the Pacific Regional Environment Programme. This assessment is enriched by data gathered through interviews with national and regional climate change and development officials in the Caribbean and Pacific. It finds that regional organisations are more effective with respect to their adaptation-related inputs and outputs but are less effective in coordinating adaptation projects/programs. It recommends that, in addition to differentiating organisational

mandates, regional organisations should focus on resolving the major climate-related information deficit issues, helping countries to develop ready-to-finance investment projects, building national level capacities to adapt, and supporting the creation of an enabling environment for climate change adaptation.

# 5.2 Acronyms and abbreviations

AIMS Atlantic, Indian Ocean, Mediterranean and South China Sea

AR5 Fifth Assessment Report of the Intergovernmental Panel on Climate Change

CARICOM Caribbean Community (and Common Market)

CCA Climate change adaptation

CCCCC Caribbean Community Climate Change Centre

FAROCCCA Framework for Assessing Regional Organisations Coordinating Climate Change

Adaptation

GCCA:PSIS Global Climate Change Alliance: Pacific Small Island States

GEF Global Environment Facility

IMF International Monetary Fund

IPCC Intergovernmental Panel on Climate Change

NE No evidence

NGO Non-governmental organisation

PACC Pacific Adaptation to Climate Change Programme

PICTs Pacific island countries and territories

P-SIDS Pacific Small Island Developing States

SIDS Small island developing states

SMART Specific, measurable, achievable, realistic, time-bound

SOPAC Pacific Islands Applied Geoscience Commission

SPACC Special Programme for Adaptation to Climate Change: Implementation of

Adaptation Measures in Coastal Zones

SPC Secretariat of the Pacific Community (now called the Pacific Community)

SPREP Secretariat of the Pacific Regional Environment Programme

UN United Nations

UNFCCC United Nations Framework Convention on Climate Change

UN-OHRLLS United Nations Office of the High Representative for the Least Developed

Countries, Landlocked Developing Countries and Small Island Developing

States

## 5.3 Introduction

Regional organisations play a key role in coordinating regional climate change adaptation (CCA) responses across small island developing states (SIDS). As an example, the Caribbean Community (CARICOM) created the Caribbean Community Climate Change Centre (CCCCC) as a specialised climate change coordination agency in 2005 (CCCCC, 2015a). SIDS are 58 countries grouped into three main geographic regions—the Atlantic, Indian Ocean, Mediterranean and South China Sea (AIMS), the Caribbean, and the Pacific (UN-OHRLLS 2015a). These countries are particularly vulnerable to current and future climate change impacts such as sea-level rise, increasing sea-surface temperatures and changing rainfall patterns (Nurse *et al.* 2014). Failure to adapt could result in the loss of those ecosystem services and infrastructure that support livelihoods (Nurse *et al.* 2014).

The Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) defines CCA as a "process of adjustment to actual or expected climate and its effects", which can take place in natural or human systems (IPCC 2014a, p. 1758). For SIDS, the process of CCA is complex. It is compounded by diverse vulnerabilities and a lack of resources (Nurse *et al.* 2014). To address this, national SIDS governments are taking part in supra-national and/or regional efforts aimed at reducing shared climate- and non-climate-related vulnerabilities (Hewitson *et al.* 2014). This is a practical step for SIDS as they face broadly similar constraints to their adaptive capacities (Cherian 2007). As a result, there is significant scope for regional

organisations to expand their role and importance in coordinating regional CCA responses across SIDS. By coordinating we mean the role that these organisations play in bringing resources together to support the design, implementation, monitoring and evaluation of national level CCA projects/programs in Member States. Despite this, the effectiveness of regional organisations in coordinating these responses across SIDS is underexplored in the academic literature. This paper helps to fill this gap, but does not seek to measure the adaptive capacity of the regional organisations.

As a first step in a cross-regional assessment of regional organisations, this paper aims to: (1) assess the effectiveness of regional SIDS-focussed organisations with respect to CCA, and (2) initiate a debate about whether the regional level is an appropriate scale for coordinating national level CCA actions. The CCCCC, the Secretariat of the Pacific Community (SPC¹) and the Secretariat of the Pacific Regional Environment Programme (SPREP) are used as case study organisations. As no suitable assessment tool existed, an analytical framework was developed and applied to the three organisations' CCA-related inputs, projects/programs and outputs. Semi-structured interviews with senior regional- and national level officials in the Caribbean and Pacific were used to enrich the analysis and drive the discussions and recommendations contained in this paper. This paper is, to the best of the authors' knowledge, one of the first academic cross-regional comparative studies of regional organisations coordinating CCA in SIDS; it provides the empirical evidence to support conclusions that may have otherwise only been suspected.

### 5.4 Literature review

### 5.4.1 Regional organisations and SIDS

While there is no general agreement in the literature on the definition of 'regional organisations', there is some consensus on their characteristics. Regional organisations are a subset of international organisations (IMF 2005), which are established to address existing problems that require collaborative action, including global environmental change and widening development gaps (Haas 1990). Beattie (2013) argued that regional organisations can facilitate burden-sharing, reduce transaction costs and assist with developing and

<sup>&</sup>lt;sup>1</sup> Despite recently changing its public name to the 'Pacific Community' to reflect its formal, legal name, the acronym 'SPC' has been retained by the organisation.

maintaining specialised knowledge. Other characteristics of regional organisations include being (1) comprised of "supranational institutions whose members are governments", (2) "located in a specific region of the world", (3) "created for many purposes", and (4) "established by means of a [formal] intergovernmental legal arrangement (e.g. a treaty)" (IMF 2005, p. 1). Zyck (2013) noted that the focus of regional organisations should be multisectoral, and that mandates should be cooperative. These characteristics imply that regional organisations are created to explicitly promote cooperative action that addresses shared problems. For the purposes of this paper, a regional organisation is understood to be a subset of an international organisation that (1) is established by a formal intergovernmental agreement, (2) is located in a specific region, (3) has national governments as members, (4) is multi-sectoral in nature and approach, and (5) seeks to address shared problems.

SIDS currently have membership in 20 regional/sub-regional organisations (UN-OHRLLS 2015b). The remoteness of these countries, combined with their financial, technical and other constraints, means that they can benefit from the economies-of-scale that regional organisations bring to the disbursement and management of financial and knowledge-based resources (ADB and Commonwealth Secretariat 2006, p. ix, Beattie 2013, Dornan and Newton Cain 2014). In addressing shared problems such as climate change, regional organisations can support national SIDS governments in designing, implementing, monitoring and evaluating CCA projects/programs as well as by providing financial, technical and other support, especially where national level resources are insufficient or inaccessible.

Regional cooperation efforts in the Caribbean have traditionally supported collective action to address common development challenges (Byron 2014). In 1973, CARICOM was established to support economic integration, cooperation in functional areas such as health and education, and the coordination of foreign policies (Bishop *et al.* 2011). Following its establishment, CARICOM faced challenges such as the limited capacities of national governments to implement CARICOM decisions, low commitment of member governments to various cooperative efforts and a number of political and financial failures (see Bishop *et al.* 2011, Girvan 2011). These have resulted in repeated calls for either the strengthening or abandonment of the Community, and cooperation efforts since the 1990s have aimed to broaden the organisation's focus (Byron 2014). Expanding its focus facilitated, for example,

the creation of specialised agencies such as the CCCCC, which is mandated to coordinate the region's response to climate change.

Regional cooperation efforts in the Pacific have shifted from a colonially-defined regional outlook, strongly influenced by Cold War thinking, to contemporary regional cooperation driven by regional organisations but also influenced by colonial powers such as Australia and New Zealand (Bryant-Tokalau and Frazer 2006). The region is home to some of the earliest and most long-standing regional organisations in Asia and the Pacific, with the fore-runner of SPC established in 1947. Despite this, regional cooperation in the Pacific has not always been smooth and it "has not experienced the deepening of cooperation and integration that has been evident recently in many other regions" (ADB and Commonwealth Secretariat 2006, p. xiii). Fry (2004) argued that there is no single consensus or vision for a Pacific regional community, and that global events and trends such as the 'war against terror' influence the debate. Supporting this, Tarte (2014) suggested that new regional groupings such as the Pacific SIDS (P-SIDS) are emerging due to SIDS' growing dissatisfaction with existing regional frameworks.

While membership in regional organisations can have benefits for CCA in SIDS, the degree to which these organisations are effective in coordinating regional CCA responses has implications for regional CCA strategies and programming. Additionally, whether or how the organisations interact or the extent to which their mandates overlap can be important determinants of success. According to Nolte (2014), overlaps among regional organisations can occur both in membership and mandate, with impacts on effectiveness. These overlaps are influenced by a variety of factors which can affect cooperation levels, however, Nolte (2014) identified membership overlaps combined with mandate differentiation as a possible key to cooperative governance.

### 5.4.2 Organisational effectiveness

Conceptually, organisational effectiveness is the degree to which an organisation is able to realise its goals (Etzioni 1964). Measuring it is difficult, however, and the literature includes a variety of methods to gauge effectiveness. (e.g. Quinn and Rohrbaugh 1983, Iwu *et al.* 2015). Sowa *et al.* (2004, p. 715) described organisational effectiveness as comprising "management effectiveness" and "program effectiveness", with two respective sub-components –

capacities (processes and structures) and outcomes. Capacities relate to how an organisation operates, its resources, internal rules, standards and guidelines. Outcomes, as discussed by Mitchell (2008), are the longer-term results of an action, and are often not immediately measurable. The literature proposes many effectiveness models, including the goal-oriented, resource-oriented, process-oriented, and strategic constituency models. The goal-oriented model focusses on outputs (see e.g. Etzioni 1960, Button *et al.* 1996). The resource-oriented model examines the organisation's ability to acquire necessary resources (see e.g. Wolfe and Putler 2002). The process-oriented model focusses on effective and efficient use of resources (see e.g. Daft 2012). The strategic constituency model examines the links between the organisation and its main stakeholders (see e.g. Connolly *et al.* 1980). For regional organisations coordinating CCA, each of these models provide insights into aspects of their functioning and effectiveness. Based on our conceptualisation of organisational effectiveness, we seek to qualitatively examine how the goals, resources, processes and strategic constituencies of regional organisations in the Caribbean and Pacific are brought together to support CCA in SIDS.

The measures of organisational effectiveness proposed in the literature are spread across multiple disciplines, including organisation theory, public and private sector effectiveness, and international environmental regime effectiveness. Sowa et al. (2004) identified both objective and perceptual measures. Perceptual measures, in this case, would rely on data gathered through interviews with individuals who have an intimate knowledge of the organisation. In the context of CCA, perceptual measures can support assessments of whether adaptation projects are reducing on-the-ground climate change impacts and vulnerabilities. Herman and Renz (2008) argued that good board management processes help keep the organisation in touch with stakeholders' needs and perceptions. Lockwood et al. (2010) used the principles of legitimacy, transparency, accountability, inclusiveness, fairness, integration, capability and adaptability to assess the governance of natural resource management. Complementing this, Taylor et al. (2014) highlighted visionary leadership in creating purpose through the linking of effort to outcome. The World Economic Forum (2014) explored effective leadership in international organisations and highlighted seven key indicators, including talent development and retention, strategic priority setting and broad stakeholder engagement. Yukl (2008), in exploring how leaders affect organisational effectiveness, discussed three components: process efficiency, human capital and ability to adapt to circumstance, and how these can be influenced by organisational leaders. These numerous measures provide scope to combine elements suitable for assessing regional organisational effectiveness in supporting the CCA actions of SIDS.

# 5.5 Analytical framework

Organisational effectiveness is conceptually simple but for which there are no widely agreed measures (Iwu et al. 2015). This paper is primarily shaped by modern organisation theory and elements of neo-functionalism (see further details in Appendix 4.1). It also builds on previous research by developing and applying discipline-appropriate components and indicators of organisational effectiveness. An interdisciplinary approach is used to identify and select organisational practices that are likely to improve organisational effectiveness (Cameron et al. 2011). A simple approach to 'effectiveness' is taken here; it is both the ability of regional organisations to produce desirable CCA-related outputs and outcomes based on their inputs and projects/programs, as well as the degree to which they actually accomplish this (following Daft 2012).

The authors developed the Framework for Assessing Regional Organisations Coordinating Climate Change Adaptation (FAROCCCA), a qualitative tool for understanding and rating the effectiveness of the regional organisations in this regard. FAROCCCA draws on multiple bodies of literature, including modern organisation theory (e.g. Daft 2012), public and private sector effectiveness (e.g. Parhizgari and Ronald Gilbert 2004), natural and shared resource management (e.g. Gupta et al. 2010), and research design and social measurement (e.g. Miller and Salkind 2002). It also draws on regional frameworks and strategies such as the Caribbean's Regional Framework for Achieving Development Resilient to Climate Change and The Framework for Pacific Regionalism, which replaced the Pacific Plan for Strengthening Regional Cooperation and Integration in 2014 (see CCCCC 2012, PIF Secretariat 2014). FAROCCCA incorporates elements of the four main models of organisational effectiveness identified in Section 0 above and comprises four components—input effectiveness, project/program effectiveness, output effectiveness and outcome effectiveness, the first three of which are considered in this paper. It has both objective and perceptual indicators (following Sowa et al. 2004) (see Figure 5.2). While covering the significant aspects of

organisational effectiveness, FAROCCCA does not measure the adaptive capacity of organisations.

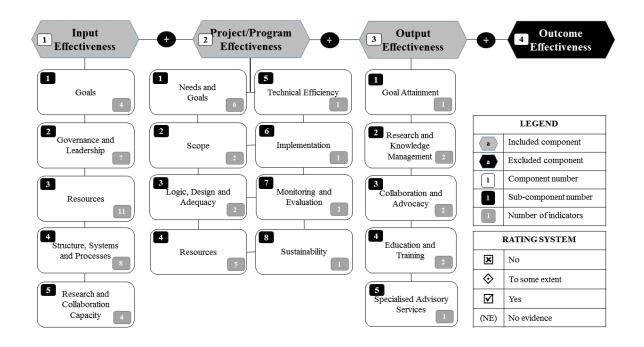


Figure 5.2: FAROCCCA Diagram

Input effectiveness is the first FAROCCCA component and is based on work by Oberlack and Neumärker (2013), Quinn and Rohrbaugh (1983) and Young (2011), among others. This component focusses on internal capacities i.e. how an organisation "operates, the structures [it has] in place, and the operating processes that dictate and direct employee action" (Sowa et al. 2004, p. 715). It is premised on the idea that an organisation that is well-managed internally is more likely to deliver high quality projects/programs and thus is more likely to produce better outputs and outcomes. The input effectiveness component has five subcomponents (see Figure 5.2), comprising 34 objective and perceptual indicators (see Appendix 4.2 for a breakdown of FAROCCCA's components, sub-components and indicators).

Project/program effectiveness is the second FAROCCCA component, which builds upon the work of authors such as Biermann and Bauer (2004), McDavid *et al.* (2013) and Weiss (2005). This component focuses on how well the organisation implements CCA-related projects/programs. It has eight sub-components and 20 indicators.

Output effectiveness is the third FAROCCCA component. Work by Sowa *et al.* (2004) and others support its inclusion. Output is understood as the direct product of an activity, and is

distinct from outcome, a longer-term result or consequence of an activity that may not be immediately measurable following the activity (see e.g. Mitchell 2008). Output effectiveness is, therefore, the degree to which the direct product of an activity achieves its related specific, measurable, achievable, realistic and time-bound (SMART) objectives, but which may not give a direct indication of whether an activity will achieve its strategic goals. In FAROCCCA, it has five sub-components and eight indicators.

Outcome effectiveness is the fourth FAROCCCA component. Given the uncertainty of future climate-related conditions, CCA outcomes are difficult to measure and in many instances, they are still unknown. Though a critical component, it is not included within the scope of this paper.

In this case, FAROCCCA is applied in a SIDS context, however, it is intended to have broader applicability to regional organisations coordinating CCA in other non-SIDS developing countries. Further, it is a framework that regional organisations can apply internally to self-assess their effectiveness. It is flexible, and with modifications, can be applied more broadly beyond CCA.

### 5.6 Methods

In this study, desk-based research and interviews are used to qualitatively assess the effectiveness of regional organisations in coordinating regional responses to climate change across SIDS.

### 5.6.1 Case study selection

Three of the 20 regional/sub-regional organisations in which SIDS have membership are included in this study—the CCCCC, as a specialised climate change agency of CARICOM, SPC and SPREP. Case study organisations were identified from a UN-OHRLLS list (see UN-OHRLLS 2015b). The other 17 organisations were excluded because (1) they are sub-regional organisations (N=3), (2) they are part of the UN system (N=10), (3) their strategic goals (including those of specialised agencies) do not have a climate change adaptation focus and are not multi-sectoral in nature (N=2), and (4) SIDS do not make up at least 70% of their memberships (N=2). The Indian Ocean Commission, the main AIMS regional organisation, was eliminated at (4).

Three projects/programs are included in this study—the CCCCC's Special Programme for Adaptation to Climate Change: Implementation of Adaptation Measures in Coastal Zones (SPACC), SPC's Global Climate Change Alliance: Pacific Small Island States (GCCA:PSIS) Project, and SPREP's Pacific Adaptation to Climate Change (PACC) Programme. These projects/programs (1) were primarily focussed on adaptation, (2) targeted multiple beneficiary countries, (3) were multi-year in length, and (4) were either completed or reported as being at least 80% complete at the time of writing.

SPACC was a four-year program funded by the Global Environment Facility (GEF) through the World Bank for US\$2.1 million (CCCCC 2015b). It began in 2007 and supported three Eastern Caribbean SIDS to "implement specific (integrated) pilot adaptation measures [...], focused on biodiversity and land degradation along coastal and near-coastal areas" (CCCCC 2015b, online). GCCA:PSIS was funded by the European Union for €11.4 million (SPC 2011b). It supported nine smaller Pacific SIDS towards climate change mainstreaming and the implementation of adaptation strategies and projects, in collaboration with SPREP (SPC 2011b). It was intended to run from 2011 to 2014 (SPC 2011b). PACC is identified as "the first major climate change adaptation initiative in the Pacific region" (SPREP 2014a, online). Involving 14 Pacific SIDS, it aimed to demonstrate "best-practice adaptation in [...] coastal zone management, food security and food production, and water resources management" (SPREP 2014a, online). Funded by the GEF and the Government of Australia, it began in 2009 with each participating country hosting a pilot project to demonstrate successful on-the-ground adaptation (SPREP 2014a).

### 5.6.2 Data collection and analysis

Multiple sources of data on the respective organisations and their CCA-related inputs, projects/programs and outputs were identified. These included academic and grey literature, organisational and other websites, and, where publicly available, documents such as annual and audited financial reports, project/program evaluations and strategic plans. These were systematically reviewed by each researcher who collected extensive evidence against each of FAROCCCA's indicators from the above sources, and entered it into a table. Based on joint discussions of the evidence, each indicator was rated using the 'traffic light' method (see e.g. Gupta *et al.* 2010). Green ratings in Table 5.1 are represented as  $\square$ , showing that the researchers responded 'yes' to the indicator, and yellow ratings are represented as  $\diamondsuit$ ,

showing that the researchers responded 'to some extent'. Red ratings are represented as **E**, showing that the researchers responded in the negative; indicators for which the researchers found no evidence are presented as '(NE)'. Four months after the data was originally coded, a sample of 24 of FAROCCCA's indicators was re-coded to ensure inter-coder reliability. Agreement between the original and re-coded sample was 83.3%. Indicators coloured grey were not considered within the scope of this study. The ratings given were used as a way of drawing out interesting comparisons among the organisations rather than rating the organisations individually. This is in line with standard qualitative assessment methodologies (see e.g. Gupta *et al.* 2010).

The document analysis was enriched by semi-structured interviews with 36 regional- and national level climate change officials. Both face-to-face and Skype interviews were conducted between August 2014 and August 2015 with officials from CCCCC, SPC and SPREP, as well as with national officials from two Caribbean SIDS and two Pacific SIDS. Like those from the regional organisations, national officials were selected using purposive and snowballing techniques; their selection did not relate to the countries they represented. All interviewees had an understanding of national and regional adaptation processes, were senior in their named organisations, had oversight of a climate change-related portfolio, and had a minimum of five years' experience. Interview transcripts were developed and content analysis used to identify themes. All interviews were conducted in English and ran for an average of 55 minutes.

### 5.6.3 Limitations

This study has some limitations. First, data for the three organisations was not equally available. For example, annual and audited financial reports for the CCCCC are not publicly-available (CCCCC 2015, pers. comm. November 17). Second, the study does not collect data for perceptual indicators—these are isolated from those examined within the scope of this paper and are identified with a grey rating. For reasons of confidentiality and/or sensitivity, organisations themselves may be better placed to assess internal perceptions of their effectiveness. Third, it does not measure the outcomes of adaptation actions undertaken by the organisations. While important for determining whether current actions are facilitating effective and/or sustainable adaptation in SIDS, many outcomes are not yet known and future conditions are uncertain. Fourth, CCA is a complex task that involves many levels of

government and issues of equity, power and legitimacy; this paper focusses only on the role that organisations fulfil in this complicated space. It is also worth noting that the organisations studied have their own limitations. They cannot oblige Member States to act or cooperate in CCA actions, but must work to achieve consensus through dialogue and negotiation. Additionally, because they use external funding to offset CCA costs, these organisations may be constrained by conditions associated with donor support.

### 5.7 Results

Results are presented according to the three FAROCCCA components considered in this paper – the effectiveness of the organisations' CCA-related inputs, projects/programs and outputs. While there is more detailed results and references in Appendices 4.3-4.5, the write-up in this section only covers the issues for which there was data for all three organisations. A summary of our analysis is presented in Table 5.1.

### 5.7.1 Input effectiveness

The three organisational mandates range from an economic and social development directive, through broader environmental protection, to a specific focus on climate change. The CCCCC was the most recently established of the three organisations, set up in 2005 to coordinate responses to climate change in the Caribbean (CARICOM Secretariat 2011). SPC was originally established as an intergovernmental advisory body on economic and social development matters in 1947 (SPC 1947). SPREP began more recently as a joint initiative of SPC and three other supra-national organisations in the 1970s, and became an independent intergovernmental organisation in 1993 with a mandate to promote cooperation for environmental improvement and protection and to ensure sustainable development (SPREP 2014c). The original mandates of both Pacific organisations have evolved over time; current strategic plans are focussed towards CCA. SPC's most recent strategic plan specifies [i]ncreased resilience of Pacific island countries and territories (PICTs) to the water-related impacts of climate change and disaster" as a strategic objective (SPC 2013, p15). SPREP's most recent strategic plan states that "[b]y 2015, all Members will have strengthened capacity to respond to climate change" through adaptation and other measures (SPREP 2011, p. 16). This highlights that all three organisations have a current, explicit focus on CCA.

D D

♦ 🖸

D

D

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♦

(NE)

Staff performance is appraised (formally or informally) at least annually.

5.

×

×

SPREP

SPC

X D D

Table 5.1: Qualitative Assessment Results for Three Regional Organisations Coordinating Climate Change Adaptation

		RATING SYSTEM	STEM		
•	X	No			
-	❖	To some extent			
	D	Yes			
	(NE)	No evidence			
		Perceptual indicator or inc	or indicator not rated in this		
		SIIB-COMPONENT	INDICATOR	JJJJJ	_
			1. Input Effectiveness		
	1. G	Goals	1. Climate change adaptation was an initial goal of the organisation.	Δ	
			2. Climate change adaptation is a current goal of the organisation.	D	_
			3. The current strategic plan contains specific climate change adaptation objectives.	<b>♦</b>	_
			4. There is no other regional organisation with similar climate change	D	_
[16					
 ∕11	2. G	Governance and leadership	1. The Board provides visionary leadership and strategic direction.		_
			2. The organisation evaluates organisational performance at least annually.	<b>\$</b>	_
			3. Executive management (can also include members of the	D	_
			Board/Governing Body) decision-making is done by consensus or majority		
			vote.		
			4. Executive management staff (can also include members of the	D	_
			Board/Governing Body) are qualified and/or equipped to achieve the		
			goals of the organisation.		_
			5. Executive management staff disclose potential conflicts of interest.		
			6. The organisation attracts, retains and develops talent.		_
			7. Leaders create a dynamic organisational culture, making the organisation		
			a desirable place to work.		
	3. R	Resources	1. There are staff members exclusively dedicated to climate change	(NE)	
			adaptation.		
			2. Staff are qualified and have experience in climate change adaptation.	Σ	
			3. Staff are qualified and have experience in project/program management.	Σ	-
			4. Staff participate in ongoing training programs.	<b>\$</b>	
					⊢

	6. The organisation has untied funding.	D	<b>&gt;</b>	•
	7. The organisation has funds exclusively dedicated to climate change adaptation.	D	2	Þ
	8. External funding to the organisation has increased over the past 5 years.	<b>\$</b>	D	D
	9. The organisation has multiple funding sources.	Ŋ	$\Sigma$	Þ
	10. The organisation has financial reserves.	D	区	×
	11. The organisation has sufficient technological resources (e.g. intellectual			
	property rights, patents, copyright, software licences etc.) to carry out its			
	climate change adaptation mandate.			
4. Structure, systems and	1. There is a low degree of hierarchy (i.e. few hierarchical levels).			
processes	2. The organisation has a human resource management system that			
	supports the shaping of organisational culture and staff recruitment,			
	training, development and retention.			
	3. There is a financial management system that meets International	♦	D	Þ
	Financial Reporting Standards (IFRS) or its equivalent.			
	4. The organisation applies risk management principles in its decision-			
	making processes.			
	5. The organisation has a centralised, user-friendly internal data			
	management system.			
	6. The organisation has a user-friendly project/program management			
	system (e.g. that supports staff to identify, schedule and track resources			
	etc.).			
	7. There are mechanisms that support vertical and horizontal			
	communication.			
	8. There are internal dispute resolution protocols.			
5. Research and collaboration	1. The organisation has plans and policies that support research.	Σ	Δ	Σ
capacity	2. There are organisational funds allocated for research.	(NE)	$ar{D}$	Þ
	3. The organisation has equipment, expertise and/or resources (e.g. access	D	<b>&gt;</b>	Þ
	to journal articles etc.) for research.			
	4. The organisation's current strategic plan (or a similar document) outlines	D	D	D
	plans for collaboration with multiple stakeholders on adaptation-related			
	initiatives.			
	2. Project/Program Effectiveness			
<ol> <li>Needs and goals</li> </ol>	1. The project documents contain evidence that the project/program fills an existing need with relation to climate change adaptation.	<b>D</b>	D	<b>D</b>

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	D	D	❖	D	D		D	D	<b>♦</b>	D	♦	<b>\$</b>		×	×	
	D	D	❖	D	D		D	♦	<b>♦</b>	<b>\$</b>	<b>D</b>	D		♦	×	♦
	₽	₪	❖	❖	₪		X	♦	❖	×	♦	₽		X	♦	X
2. The project/program's adaptation components could be considered 'transformational' (i.e. the project/program focusses on "larger, more profound system changes" and requires a "paradigm shift" in the way it is framed and implemented).	3. Climate change adaptation is a goal of the project/program.	4. The project/program's goals reflect the long-range impacts of climate change.	5. The project/program's objectives relating to climate change adaptation are specific, measurable, achievable, realistic and time-bound (SMART).	6. Member Countries were involved in developing the climate change adaptation components of the project/program.	1. The project/program addresses multiple climate or climate-induced vulnerabilities (e.g. vulnerability to sea-level rise, increased sea surface	and air temperature, changing rainfall patterns etc.).	2. The project/program addresses multiple non-climate-induced vulnerabilities (e.g. poverty, deforestation etc.).	1. The logic/design of the project/program's climate change adaptation components is evidence-based, in the context of SIDS.	2. The project documents contain evidence that the logic/design of the project/program's climate change adaptation components is an effective	1. Staff members are assigned exclusively to the project/program.		3. The project/program team includes staff members with qualifications and experience in project/program management.	4. The project documents contain evidence that there are sufficient staff members to achieve the project/program objectives.	5. The project documents contain evidence that there is sufficient funding for the project/program's climate change adaptation components.	1. The project documents contain evidence that the project/program provides value for money (cost vs. outputs).	1. The project/program's climate change adaptation components are implemented, as proposed.
					2. Scope			3. Logic, design and adequacy		4. Resources					5. Technical efficiency	6. Implementation

7.	7. Monitoring and evaluation	1. The project/program is internally monitored and evaluated.	•	D	Σ
		2. The project/program is externally monitored and evaluated.	<b>N</b>	(NE)	<b>\(\bar{\D}\)</b>
∞.	Sustainability	1. There are sustained outputs from the project/program.			
		3. Output Effectiveness			
1.	Goal attainment	1. There is evidence in the most recent annual report or evaluation that the	(NE)	◆	❖
		climate change adaptation-related objectives of the organisation are			
		being achieved.			
2.	Research and knowledge	1. The organisation produces and/or publishes research that is relevant to	◆	D	₪
	management	climate change adaptation at least annually.			
		2. The organisation makes climate change adaptation-relevant research	Ŋ	D	Σ
		publicly available.			
3.	Collaboration and advocacy	1. There is evidence that the organisation collaborates with multiple	$oldsymbol{\Sigma}$	D	Σ
		stakeholders to undertake climate change adaptation-related activities.			
		2. The organisation advocates for political, financial and/or other climate	Ŋ	◆	D
		change support for its Member Countries in various fora at different			
		scales.			
 4	Education and training	1. The organisation undertakes climate change adaptation stakeholder	<u></u>	D	区
		and/or public awareness activities.			
		2. The organisation develops and/or implements training programs for	<u></u>	D	区
		stakeholders in issues related to climate change adaptation.			
5.	Specialised advisory	1. The organisation provides specialised climate change adaptation-related	<u></u>		₪
	services	advice to Member Countries and/or other stakeholders.			

Table 5.1: Qualitative Assessment Results for Three Regional Organisations Coordinating Climate Change Adaptation

Beyond their mandates and strategic priorities, all three organisations have frameworks that support their adaptation activities. In both the Caribbean and Pacific, the organisations attract staff with CCA and project management qualifications and experience. For example, the CCCCC's current Deputy Director and Science Advisor has a PhD in organic chemistry, has worked as a project manager focussing on CCA since 1997 (CCCCC 2015b, Trotz n.d.), and was a review editor of the IPCC Fourth Assessment Report's chapter on small islands (see IPCC 2007, p. 687). This adaptation and project management expertise is supported by specific funding for adaptation projects at the three organisations, which all have multiple funding sources. For example, in addition to donor funding, the CCCCC has established a reserve fund, seeded by the Government of Trinidad and Tobago (CCCCC 2015a, online), and SPC's 2013 financial report shows funding from 34 donors and 26 Member States (SPC 2014c). In spite of some year-to-year variations, external funding to both SPC and SPREP has increased over the last five years, their financial reporting meets International Financial Reporting Standards, and their financial reports are publicly available (SPC 2011a, p. 5, SPREP 2014b, p.56). The CCCCC has established a Finance and Audit Sub-Committee to strengthen financial oversight (CCCCC 2015a, online). Additionally, all three organisations have policies and plans that support climate research, and have the expertise to undertake research. SPC and SPREP's financial accounts both show funding allocated to research activities. The CCCCC participates in a research consortium that includes the University of the West Indies; it undertakes climate and economic modelling (Colley et al. 2011), and has a record of reporting on its scientific research activities to the UNFCCC (see CCCCC 2008). This highlights the success of all three organisations in attracting qualified and experienced staff and funding from multiple sources, and accessing the requisite expertise to undertake scientific research, placing them in a position to effectively support regional adaptation efforts.

Despite these positive aspects of input effectiveness, there are some areas where the organisations did not rate quite so well. SPC noted in a paper presented to a Meeting of the Committee of Representatives of Governments and Administrations in 2014 that the organisational requirement for fixed-term staff contracts has had a negative impact on job security, leading to difficulties in attracting and retaining the best staff (SPC 2014a). In 2014, SPREP spent funds from its reserve facility to cover costs associated with reviews, translations, meetings and unexpected medical fees; this resulted in its total reserve funds

being in deficit by over US\$400,000 at year end (SPREP 2015b). The CCCCC does not make its financial accounts publicly available, obscuring the state of the organisation's financial health. These less positive ratings are isolated points and are just an indication of areas where these organisations could improve their CCA-related input effectiveness.

# 5.7.2 Project/program effectiveness

All three organisations assessed have directly implemented adaptation projects. The projects assessed as part of this research are all pilot projects, with evidence that they were filling an adaptation need. The GCCA:PSIS project implemented by SPC acknowledged the particular development context of SIDS and, in response, worked with national government departments to choose priority sectors and projects that fitted within the allocated budgets (SPC 2012). Like the PACC Programme implemented by SPREP, it also took into consideration a range of non-climate change-related vulnerabilities such as isolation and population growth (GCCA *et al.* 2014, SPREP 2015a). These projects were internally monitored and evaluated, with SPREP producing quarterly internal monitoring reports, some of which are publicly available. Filling a need, working with national governments to select focus areas, and monitoring project implementation all play an important role in running a successful project.

Despite the positive points above, there were factors that point to a lack of evidence-based project design—none of the project documents reviewed contained evidence that their designs would effectively achieve their adaptation objectives. In the case of the SPACC Programme, the Terminal Evaluation revealed that the CCCCC experienced challenges with the technical design and management of the project—two of the seven pilot interventions were dropped because of "land tenure issues"; also, significant project implementation time was taken up with design negotiations and bidding document preparation, rather than improving operations and monitoring implementation (World Bank 2012, p. 9). There was also a lack of national level ownership. While member country governments endorsed the program, the same governments were not prepared for country project coordinators to speak on their behalf (World Bank 2012). SPC faced similar issues in Nauru—there were delays in gaining government endorsement, and an eventual return to the design phase of the project (SPC 2014b). Across all three organisations, the FAROCCCA assessment highlighted project/program effectiveness as the area requiring the most attention.

# 5.7.3 Output effectiveness

All three organisations rated well on achieving their immediate outputs. They all run public awareness campaigns and collaborate with multiple stakeholders to undertake CCA-related activities. As examples, the CCCCC developed the '1.5° to Stay Alive' campaign (CCCCC 2014, online), and SPC produces a television show that features climate change issues (SPC 2015b). At its 2015 meeting, the CCCCC's Board of Governors supported moves to strengthen relationships with the private sector and to work more closely with other CARICOM specialised agencies (CCCCC 2015a, online). All three organisations develop and/or implement CCA-related training programs for stakeholders, with the CCCCC being recognised by the UN Institute of Training and Research as a Centre of Excellence (CARICOM Secretariat 2011). As part of a pilot project under the PACC Programme, SPREP ran coastal erosion monitoring training for staff from the Samoan Ministry of Natural Resources and Environment (SPREP 2013b). While the output indicators for all three organisations are generally positive, only SPC and SPREP make their annual work plans and reports publicly available and provide information on the extent to which their adaptation-related objectives are being met—SPC reports annually on how expenditure compared with the budget for the year and SPREP reports on the percentage completion of targets (see e.g. SPC 2015a).

# 5.8. Discussion

# 5.8.1 Implications of results for regional climate adaptation strategies and programming

Overlapping Mandates and "Turf Wars": While neither SPC nor SPREP was established with a specific mandate to address climate change issues, it is now a key component of their work (SPREP 2011, SPC 2013). Up to 10 years ago, however, this was not the case—SPC's 2007-2012 corporate plan, for example, included just one four-line paragraph about climate change, noting that it would support SPREP's lead in this area (SPC 2007). At that time, SPREP's stated climate change objective was to "[i]mprove PICTs' understanding of and strengthen their capacity to respond to climate change, climate variability and sea-level rise" (SPREP 2006, p. 23); the converging mandates of the two organisations could result in competition for scarce adaptation funding and potentially lead to what has been publicly referred to as a "turf war" (e.g. Maclellan 2011, p. 24, ABC 2015, online). In contrast, the

CCCCC was created specifically to coordinate and manage responses to climate change in the Caribbean (CARICOM Secretariat 2011). While there are other organisations in the Caribbean such as the Association of Caribbean States and the University of the West Indies that administer climate change projects, they do not have a specific mandate for coordinating climate change responses across the region (see ACS 2012, UWI 2012). Organisational effectiveness may be impeded where two or more organisations working within the same region have overlapping mandates.

There are multiple options for resolving the overlap in organisational mandates and thus reducing the likely competition for scarce resources. The two options proposed here are based on work by Linn and Pidufala (2008) and Nolte (2014), which discuss different aspects of regional governance, including regional economic cooperation. One option would be to focus on differentiating mandates in the Pacific, as is the case in the Caribbean. Mandate differentiation would result in either (1) one organisation being wholly responsible for coordinating the regional response to climate change or (2) a fully coordinated approach across relevant organisations working at the regional level. The latter would require a clear delineation of roles within the coordinated response. An alternative to mandate differentiation is for SPREP to be incorporated into SPC as a specialised agency, similar to the CCCCC being a specialised agency of CARICOM. Likewise, Linn and Pidufala (2008) suggested the consolidation of regional organisations, and there have been recent efforts in the Pacific to reduce the number of regional organisations. For example, the Pacific Islands Applied Geoscience Commission (SOPAC) was incorporated into SPC and SPREP under the Regional Institutional Framework Reform with effect from 2011 (SPC - Geoscience Division 2010). The extent to which these consolidation efforts in the Pacific have improved organisational effectiveness is not yet known.

Regional Organisations as Project/Program Implementers: All three regional organisations researched have implemented adaptation projects/programs. However, our results show that for all three organisations, project/program effectiveness is their weakest area. This is perhaps an issue of scale; a regional organisation directly implementing pilot projects within a community setting is operating from a supra-national level through both the national and sub-national levels. While this may avoid some of the cross-scale barriers discussed in the literature such as authorisation, and the availability of resources, technology and human

capital (e.g. Moser and Ekstrom 2010), it can introduce problems of its own. With a single project manager based in a regional organisation and being responsible for implementing multiple discrete projects with differing aims and objectives, the varying socio-economic, cultural, spatial and political contexts across and within recipient island countries will limit the successful implementation of the projects. This idea is partially encapsulated in a comment by the PACC Programme Manager:

"In an ideal situation, projects follow a cycle of planning, implementation and monitoring, but because of the complex nature of the PACC programme, this has not been always possible. We have had to adjust and adapt to make things work" (SPREP 2013a, p. 39).

But can this comment be seen as an application of 'adaptive management' i.e. the "process of iteratively planning, implementing, and modifying strategies for managing resources in the face of uncertainty and change" (IPCC 2014a, p. 1758), or as an indictment on poor project/program design? The project documents reviewed often cited the application of 'adaptive management' techniques when project scopes changed, components were dropped and/or original targets were not met. In the case of the PACC Programme, it was used to explain the program not following the 'ideal' project path. In the case of the SPACC Programme in the Caribbean, it was used to explain part of the reason for dropping two of the seven pilot interventions after project inception (see World Bank 2012). It is possible that the term 'adaptive management' is being used to mask other project/program deficiencies. On the other hand, the PACC Programme Evaluators noted that PICT officials "had not fully identified vulnerabilities nor formulated climate adaptation strategies for a sector or the country; many had produced relatively simple lists of new project concepts", with these lists not constituting "a sound basis for identifying and developing priority actions and projects" (Hunnam et al. 2012, p. 34). This also suggests that critical assessments of "current (baseline) and future conditions, covering climatic, environmental, social, and economic factors" were not carried out (Hunnam et al. 2012, p. 34). At the design phase, proposed adaptation projects must be screened for feasibility and possible maladaptation (see Barnett and O'Neill 2010). Failing this, project/program managers will continue to cite the application of 'adaptive management' techniques when project scopes are changed, even when the project/program design does not give full consideration to the climate and non-climate-related vulnerabilities

as well as to the broader socio-economic, cultural, spatial and political implementation contexts. In addition, while implementation of pilot projects is a way of testing approaches, the variety of factors that influence the success of a project in a particular location may be markedly different in another location, potentially impacting the sustainability of the pilot project methodology.

The challenges of project design and implementation outlined above highlight the need for a debate about whether the regional scale is appropriate for direct implementation of adaptation projects/programs in SIDS. The adaptation projects/programs assessed as part of this study all consisted of multiple pilot projects. We have discussed the challenges of implementing discrete adaptation pilot projects simultaneously across a variety of SIDS. Our results suggest that if regional organisations, working supra-nationally, continue with direct project implementation, there will be a number of areas that require attention. These areas include (1) developing SMART indicators for ease of project/program monitoring and evaluating, (2) strengthening project/program design, and incorporating evidence from previously-implemented projects/programs, (3) ensuring continuity of appropriately qualified project/program staff, (4) ensuring sufficient project funding, including for contingencies, and (5) ensuring projects provide value for money. Strengthening these areas is likely to lead to greater project/program effectiveness.

# 5.8.2 Recommendations for the future role of regional organisations

Further to the issues identified above, three recommendations for the future role of regional organisations are made here. These are informed by interviewee responses.

The first recommendation is that regional organisations should focus on resolving the "major information deficit issues", noted by one Caribbean official (Interviews, January 2015) (see also Dornan and Newton Cain 2014):

"One of the things that is very important for regional organisations to lead on would be the issue of the climate models – if we are using the climate models to inform policy direction and project interventions, no single country in our region can do that, so that is something for a regional entity like the CCCCC to enact" (Interviews, January 2015).

This view was supported by one Pacific official who noted that regions "need to have access to technological resources such as early warning systems and modelling software" (Interviews, September 2014). SPC and SPREP, working supra-nationally, are well-placed to deploy such resources throughout the Pacific region.

The second recommendation is for regional organisations to continue to "help countries develop a portfolio of ready-to-finance investment projects" and to improve countries' access to international adaptation financing (Interviews, January 2015). This role, in the Caribbean, has been impeded because:

"... very few countries have been agile enough to move in this direction [...]; in some respects, some are just downright slow and others seem to have little appetite to move in that direction; if we don't, then clearly it's going to come back to haunt us" (Interviews, January 2015).

The situation in the Pacific is different. Countries such as Samoa, one Pacific civil servant noted, are "swimming out" to attract financing for national adaptation projects, which is helping to relieve the burden on regional organisations to attract these resources (Interviews, October 2014). Another Pacific civil servant noted that countries such as Fiji "know how to play the game" and are able to attract more adaptation financing than other Pacific SIDS that are not as savvy (Interviews, August 2015). These countries that are perceived by other Pacific officials as having the international financing 'know how' could play a role in assisting other less adept countries to pursue required financing. This would, however, raise additional questions regarding the role and continued relevance of regional organisations in coordinating regional responses to climate change across SIDS.

The third recommendation is that regional organisations should prioritise capacity building for risk reduction within national governments over discrete project implementation, at least over the next few years. As one Caribbean interviewee noted, regional organisations can [and should] lead on "building capacity to reduce our [the region's] exposure to risk" (Interviews, January 2015). This suggestion is similar to a global move, including in the Pacific for the development of joint national action plans that integrate disaster risk reduction with CCA, both at national and regional levels (Nalau *et al.* 2015). Likewise, the Caribbean is moving towards a comprehensive disaster risk management approach, which is part of a broader

sustainable development goal that aims "to strengthen regional, national and community-level capacity for mitigation, management and coordinated response to natural and technological hazards and the effects of climate change" (Collymore 2011, p. 15). Leading on capacity building could involve, for example, helping governments to build their skills base. This would support a higher degree of national government ownership over the adaptation process, as per the comment of another Caribbean official that, "shifts in cultural paradigms" and "government buy-in" are "the only way that we will truly adapt to climate change" (Interviews, December 2014). Additionally, the national capacity building required does not only relate to climate change. A Caribbean official said that the state of national "policy or enabling environments" hampers the extent to which regional organisations can be effective (Interviews, January 2015). The interviewee explained that many Caribbean countries, for example, rank poorly on the World Bank's 'Doing Business Index' because of:

"... bureaucratic structures, how long it takes to get things done, the kinds of hoops you have to go through [and that] there is no 'one-stop-shop' type of agency to facilitate the kinds of [adaptation-related] investments necessary" (Interviews, January 2015).

Without an appropriate, functioning policy or enabling environment at the national level, there are limits to the adaptation support that regional organisations can provide.

#### 5.8.3 Opportunities for future research

This study is not intended as a final assessment of regional organisations coordinating CCA in SIDS; rather, it is a preliminary assessment designed to initiate a debate about what roles regional organisations can most effectively play in supporting adaptation across SIDS. As such, it opens up a number of opportunities for future research, such as:

- Re-applying FAROCCCA to the three case study organisations when more information, particularly for the CCCCC (e.g. annual and audited financial reports), becomes publicly available.
- Assessing the perceptual indicators in FAROCCCA, leading to a more nuanced understanding of regional organisational effectiveness with respect to CCA and SIDS.
- Applying FAROCCCA to organisations working in fields other than CCA.

- Assessing the role that external donors play in influencing regional organisations' actions and decisions around CCA, and also on the nature of adaptation responses in SIDS.
- Exploring the demand-side of adaptation in SIDS, and the factors that drive adaptation processes and actions.
- Determining whether there is a relationship between the size and resources of individual countries and the nature and extent of their engagement with regional organisations in relation to CCA.

# 5.9 Conclusion

This paper makes three primary contributions to the academic literature. First, it develops FAROCCCA, a qualitative tool for understanding and rating the effectiveness of the regional organisations coordinating regional responses to climate change across SIDS. FAROCCCA has four components, 18 sub-components and 62 indicators, covering areas such as the quality of human, financial and technological resources, the logic, design and adequacy of adaptation projects/programs, and collaboration and advocacy. It is a tool that can be used by regional organisations themselves as well as by independent evaluators and academics. The Framework could also be modified or expanded to suit specific circumstances, for example, to assess regional organisations working in fields other than CCA and SIDS. Second, this crossregional study into the effectiveness of regional organisations coordinating regional responses to climate change across SIDS is among the first in the academic literature. To date, the literature has focussed on single-country and single-region examinations of adaptation practices and processes in SIDS, often zeroing in on the effectiveness of national governments and community-based organisations. This paper helps to fill the gap relating to adaptation practices and processes across SIDS regions and the effectiveness of action at the supranational level. Third, it provides empirical evidence to show that the regional organisations studied are comparatively effective with respect to their CCA-related inputs and outputs but that they are less effective in designing, implementing, monitoring and evaluating adaptation projects/programs. The study recommends that, in addition to differentiating organisational mandates, regional organisations should focus on resolving the major climate-related information deficit issues, helping countries to develop ready-to-finance investment projects, building national level capacities to adapt, and supporting the creation of an enabling environment for CCA.

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# Part D: Modifying FAROCCCA and Applying it to two Regional Models of Support to National Level Adaptation and Health in Southeast Asia

Part D of this thesis is its culmination. Part B of the thesis identified a number of similarities and differences across three Southeast Asian countries in terms of the need for improving coordination, particularly across scales and sectors. Part C of the thesis was used to develop and test a framework that would be suitable for assessing the support provided by ROs to national level adaptation. The development and testing of the framework was done in the context of small island developing states in the Caribbean and Pacific regions, and focussed on overall adaptation, in order to ensure it would be robust enough to span sectors and geographies. Part D of this thesis, which comprises a single chapter, was used to modify and apply the framework to two regional models of support to adaptation and health in Southeast Asia.

This part of the thesis considers two distinct models of regional support for adaptation and health, to qualitatively assess the effectiveness of RO contributions, as well as to make recommendations on how their support could be improved.

# Chapter 6: Regional Organisations Supporting Health Sector Responses to Climate Change in Southeast Asia

# *Introduction to Chapter 6*

Chapter 6 of this thesis addresses the following research questions:

- What are the strengths and weaknesses of governance- and project-based models of support for health and adaptation to climate change in Southeast Asia?
- How could the support provided by regional organisations to national level adaptation and health in Southeast Asia be improved?

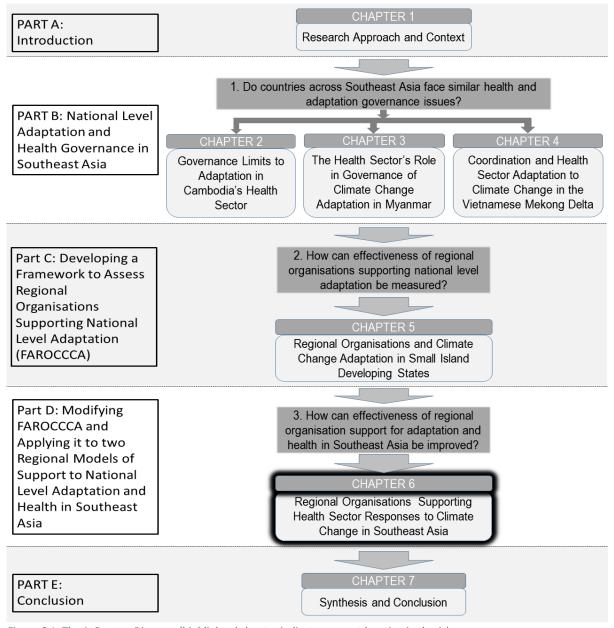


Figure 6.1: Thesis Process Diagram (highlighted chapter indicates current location in thesis)

Chapter 6 of this thesis builds on the previous chapters, and addresses the overall thesis research question about the effectiveness of ROs supporting adaptation and health in Southeast Asia. The importance of the role played by ROs in supporting adaptation and health in Southeast Asia is growing, in line with global recognition of this issue. For example, in 2004 the Regional Forum on Environmental Health (renamed the Asia-Pacific Regional Forum on Health and Environment [APRF] in 2016) was established, with its charter signed by member states in 2007 (RFEH 2007). It included a focus area on climate change and health. A year after the APRF charter was signed, the Asian Development Bank (ADB) published its 2008 – 2020 strategic plan (ADB 2008), which committed the bank to supporting member states to adapt to the health impacts of climate change.

Despite the growing recognition of the importance of health implications of climate change both by ROs in Southeast Asia and more broadly (e.g. Watts *et al.* 2015a), this is the first research into the effectiveness of ROs supporting national adaptation and health in Southeast Asia, and one of only a few worldwide. Additionally, this research modifies a proven framework for assessing ROs supporting adaptation, emphasising its utility and applicability for assessing RO support for adaptation and health globally as well as for support in other sectors. With respect to ROs in Southeast Asia, this research found that there were overlaps and redundancies between the work of the two organisations assessed because of a lack of institutionalised coordination, and that both the project-based and governance-based models of support had weaknesses. The weaknesses of the two models were primarily in different areas, indicating that future efforts to improve coordination of these two ROs could focus on utilising the strengths of each. One possibility to encourage this would be Pittock's (2010) suggestion for funding to be made available tied to collaborative and coordinated work.

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# Chapter 6 Publication

Gilfillan, D., (Under Review). Regional organisations supporting health sector responses to climate change in Southeast Asia, *Globalization and Health*.

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# 6.1 Abstract

Background: The role played by regional organisations in climate change adaptation and health is growing in Southeast Asia, with the Asian Development Bank and the Asia-Pacific Regional Forum on Health and Environment both supporting health and adaptation initiatives. There is, however, a lack of empirical research on the value that regional organisations add to national health-related adaptation.

Objective: This qualitative research compares regional project- and governance-based models of adaptation and health support in Southeast Asia, providing an analysis of strengths and weaknesses of each, as well as possibilities for improvement.

Methods: An existing adaptation assessment framework was modified for this research, and used as a guide to gather data from academic and grey literature, policy documents and interviews in order to qualitatively assess two organisation and their different models of adaptation and health support.

Discussion: Regional organisations with mandate and membership overlaps should actively seek to complement each other's work, however there is little evidence of active coordination between the two organisations assessed. While both report output achievement positively, their adaptation and health initiatives could be improved.

Conclusion: Where regional organisations in developing parts of the world have mandate overlaps, well designed, institutionalised and incentivised coordination mechanisms will reduce inter-organisational redundancies as well as the administrative workload of partner government agencies. In Southeast Asia, the Asian Development Bank's project management strengths would complement the Asia-Pacific Regional Forum on Health and Environment's vision and perceived legitimacy to deliver improved adaptation and health outcomes.

# 6.2 Introduction

Southeast Asia comprises 11 countries, ranging from archipelagos and an island-state, to landlocked Laos. Despite their varied geographies, developing countries in Southeast Asia have broadly similar climate change-related vulnerabilities due to a high and growing population and a reliance on agriculture for livelihoods [1]. The Intergovernmental Panel on Climate Change (IPCC) [2] defines vulnerability as a function of several elements, including exposure to physical impacts (e.g. changing rainfall patterns) and adaptive capacity (e.g. ability to adjust one's means of livelihood support). For example, Yusuf and Francisco [3] rated Cambodia's climate change vulnerability as high because, despite relative insulation from physical climate change impacts, the country's poor infrastructure, widespread poverty and lack of technology means it has low adaptive capacity. Similarly, McElwee [4] described the many people of the Mekong Delta whose poverty and poor education limit their capacity to maintain livelihoods in the face of climate-related shocks including rising sea-level induced salt-water intrusion into agricultural areas. Broadly similar regional vulnerabilities highlight the importance of regional organisations (ROs) supporting climate change adaptation (CCA) in Southeast Asia. ROs are supra-national institutions with national governments as members, established to address shared problems and focussing their activities in a specific region.

According to the IPCC, CCA is the "process of adjustment to actual or expected climate and its effects" [2: p. 1758]. For health this includes more than climate-proofing treatment centres and preparing for more cases of climate-sensitive diseases, because health determinants include factors both inside and outside the direct control of health ministries, including "access to safe water and clean air, food security, strong and accessible health systems, and reductions in social and economic inequity" [5: p. 2]. Missoni [6] argued that inequality, including health inequality, is exacerbated by a focus on economic growth and,

further, that addressing health determinants ahead of time is less expensive and leads to longer-term sustainability. Similarly, improving health determinant access will increase adaptive capacities, emphasising the growing importance of interactions between health and CCA [7; 8].

Environmental health determinants have attracted the interest of governments across Southeast Asia. For example, 14 health and environment ministries worked with the World Health Organization (WHO) and United Nations Environment Programme (UNEP) to establish the Regional Forum on Environment and Health [9], now the Asia-Pacific Regional Forum on Health and Environment (APRF), which has climate change and health objectives. The APRF, with its intergovernmental meeting, secretariat and seven thematic working groups (TWGs), meets the RO definition described above. The Asian Development Bank (ADB), another RO, is also focussing increasing amounts of time and energy on transnational environmental challenges [10; 11], with its 2008 – 2020 strategic plan including climate change impacts on health as a concern [12]. Despite this, there is little published research on the effectiveness of ROs supporting CCA and health.

To the best of the researcher's knowledge, this is the first research examining the effectiveness of ROs supporting CCA and health in Southeast Asia. To assess the APRF's and ADB's CCA and health support, Robinson and Gilfillan's [13] Framework for Assessing Regional Organisations Coordinating Climate Change Adaptation (FAROCCCA) was modified as an analytical tool. Data from in-depth, semi-structured interviews with senior government officials from health and environment ministries and from international organisations, including the ADB and APRF, were triangulated with analysis of policy documents as well as academic and grey literature. Using the ADB and the APRF as case studies, and reflecting on other research into international and ROs, treaties and regimes [e.g. 13; 14], this research concludes that weakness of coordination between ROs with overlapping mandates undermines their efforts to support adaptation, and that collaborative coordination can improve this. In the Southeast Asian adaptation and health case, the ADB's project management and funding experience could be integrated with the APRF's perceived legitimacy and vision for sustainability through national ownership of environment and health issues to improve adaptation and health outcomes across the region.

#### 6.3 Literature review

The literature reviewed here is utilised in the discussion to support results analysis. The review has three sections. The first section considers public health and climate change, highlighting the challenges of evaluating health and adaptation interventions. This is followed by a discussion of RO cooperation and competition, with the final section considering ROs' role in CCA and health as well as in Southeast Asia.

# 6.3.1 Public health and climate change

The literature on climate change and health is evolving rapidly. For example, Hess *et al.* [15] reviewed the work of authors including Ebi and Burton [16], Ebi *et al.* [17], Ebi and Semenza [18], Ebi *et al.* [19], concluding that while there is substantial literature on identifying climate change impacts on public health, little focusses on public health interventions. To reconcile evidence-based public health (EBPH) with CCA and health, Hess *et al.* [15] modified Jones *et al's* [20] EBPH framework to incorporate CCA concerns. Likewise, the United States Centers for Disease Control and Prevention developed the standalone 'Building Resilience Against Climate Effects' (BRACE) framework, which Marinucci *et al.* [21] described as suitable for assessing climate-related impacts on health as well as for prioritising interventions.

One step removed, Bouzid *et al.* [22] conducted a meta-review of 33 public health interventions related to climate change impacts, finding a paucity of evidence, particularly in areas related to droughts, floods, food safety and air pollution. They also experienced difficulties applying randomised controlled trial methodologies to environment and health interventions. Consequently, Bouzid *et al.* [22] made adjustments to a WHO recommended grading tool to better reflect CCA aspects. Similarly, Hess *et al.* [15] concluded that randomised controlled trials are not necessarily suitable for EBPH, leaving space for context-based qualitative studies. But even where evidence is clear, Ward *et al.* [23] argued that transferring health research evidence into policy is complicated, and similar arguments have been made with regard to environmental management [24]. Methods for adjusting health research frameworks for public health and climate change are widely debated, and transferring evidence into policy realms adds additional complexities. The framework used in this research responds to these concerns by focussing on organisational governance and effectiveness, thus helping to fill a knowledge gap.

# 6.3.2 Cooperation and competition among regional organisations

There is a robust literature discussing organisational cooperation, competition and conflict. For example, coordination requires costly incentive structures and legislative frameworks [25], such as specialised national institutions to harmonise the work of decentralised governments [26]. Coordination costs can be offset, however, through factors including increasing the scale of operations, eliminating redundancies and a reduction in 'turf protection' [27].

Nolte [28] argued that a key to coordinated regional governance is membership overlaps combined with mandate differentiation. However, mandate differentiation may be elusive, with Galbreath and Gebhard [29] arguing that goal convergence of European regional security organisations occurred because of similar organisational responses to a changing political situation. To resolve European goal convergence-related problems, such as duplication [30], explicit efforts were made to improve coordination between these ROs, focussing on information exchange and common approaches where mandates overlapped [29].

Similar to the goal convergence in Europe, and in line with global CCA and health trends [5], the ADB's 2008-2020 strategic plan includes climate change and health commitments closely resembling those in the APRF charter [9; 12]. However, as discussed later in this paper, institutional effort to achieve inter-organisational coordination between the ADB and APRF has been lacking, increasing the chances of future inter-organisational competition for scarce resources [28]. Offering possibilities to minimise competition potential, Pittock [14] argued that international environmental regime coordination could be supported through provision of funding specifically for collaborative work. Providing an alternative view, Brosig [31] argued that ROs operating in the same geography and sector will interact based on rational choices associated with mutual resource dependencies, such as a financially well-equipped organisation collaborating with another that has expertise or legitimacy. While differentiated mandates may be ideal, where it is difficult to achieve or maintain, institutionally supported inter-organisational coordination can support achievement of goals.

Achieving goals is one way of building legitimacy, with Biermann and Gupta [32] describing output legitimacy, derived from successfully achieved objectives, being distinct from process-related input legitimacy. For example, Riggirozzi and Grugel [33] argued that the Union of

South American Nations sought to create output-focussed legitimacy for itself by supporting health policy development across South America. Conversely input legitimacy is often associated with stakeholder inclusion in decision-making processes, and is perspective-dependent [32]. For example, an excluded group would likely give a lower process legitimacy rating than would beneficiaries of that exclusion. Linking input and output legitimacy, Kapiriri [34] argued that, for priority setting in low income countries, clear and transparent processes increase perceptions of legitimacy, thus leading to better stakeholder agreement. Similarly, Bernstein [35] argued that legitimacy is a key source of authority in global environmental governance where coercion is unavailable and inducements are costly. Thus, despite legitimacy being perspective-laden, it can be a key to achieving goals, particularly where carrot and stick approaches are not viable.

#### 6.3.3 Health, adaptation and regional organisations in Southeast Asia

Climate change and health is being considered at a variety of scales. Globally, the 10<sup>th</sup> Focal Point Forum of the Nairobi Work Programme focussed on CCA and health [36], and ROs are also focussing attention on this area [see, e.g. 9; 12]. However, literature focussing on ROs, CCA and health is scarce. In one paper, Thomson *et al.* [37] echoed Ward *et al.* [23] by arguing there is a need for clear evidence of climate and health links, adding a need for evidence that responses will be cost-effective. Supporting IPCC and WHO assessments, Wahlqvist *et al.* [38] argued that food security will be a major CCA and health issue in Asia, however none of the three regional initiatives they researched prioritised health. Notwithstanding the limited research on regional responses, the growing global interest in climate change and health linkages makes it unsurprising that the ADB and the APRF are both involved in Southeast Asian CCA and health initiatives [39; 40: Online]. This paper fits in the gap in research into effectiveness of ROs supporting CCA and health in Southeast Asia.

Around the time Southeast Asian nations gained independence there was significant interstate conflict, resulting in the dissolution of early regional bodies [41]. Perhaps because of the region's recent history of conflict, today's "ASEAN way" enshrines the concept of non-interference in others' domestic affairs [11: p. 84; see also 10]. Thus, similar to Bernstein's [35] argument regarding global environmental governance, the work of Southeast Asian ROs lies at the cooperative end of Börzel's [42] cooperation-integration spectrum. In line with this, authors including Brömmelhörster [43] and Koh and Bhullar [11] have discussed the

importance of national adaptation strategies in Southeast Asia, supported by supra-national regional coordination, collaboration and knowledge sharing. Globally, supra-national climate-related cooperation also relies on national rather than international legislation [44; 45] Thus, even where regional legislation is unlikely to eventuate, such as in Southeast Asia, ROs can support national CCA and health efforts by, for example, supporting national efforts to develop climate change and health-related evidence, and through catalysing domestic policy and legislation development.

# 6.4. Conceptual framework

# 6.4.1 Analytical framework

Conceptually, organisational effectiveness is about an organisation's systems, procedures and resources providing it with the capacity to achieve outputs and outcomes, as well as about its actual success in achieving those goals. For example Scott [46] premised effectiveness on goal achievement as well as resource acquisition ability, internal processes and stakeholder satisfaction. Despite its conceptual simplicity, there is a lack of agreement on suitable organisational effectiveness measures [47]. Including CCA and public health in organisational goals increases the challenge because both are future-focussed. Robinson and Gilfillan [13] reviewed the organisational effectiveness literature for CCA-related effectiveness indicators, developing FAROCCCA because of a lack of suitable existing assessment frameworks. For the Southeast Asian CCA and health context, FAROCCCA required some modifications including ensuring indicators referred to CCA and health where appropriate, and allowing for an intergovernmental meeting, its TWGs and secretariat to be assessed as an organisation. A third modification was the inclusion of an explicit legitimacy indicator, with the addition supported by the work of authors such as Kapiriri [34], Bernstein [35] and Riggirozzi and Grugel [33]. The modified FAROCCCA is a framework for assessing organisational inputs, initiatives and outputs. It has 18 sub-components ranging from goals and governance to design logic and collaboration, with the sub-components further split into 63 indicators.

Table 6.1, below, provides a summary of the modified FAROCCCA results, grouped into the 18 FAROCCCA sub-components. Appendix 5.1 shows the modifications to the original FAROCCCA, along with indicator results. Appendices 5.2 and 5.3 provide the detailed results with evidence, including a rationale for each rating in bold italics.

#### 6.4.2 Theoretical framework

This research qualitatively assesses ROs supporting CCA and health, and is built on modern organisation theory, with the researcher also influenced by resilience thinking. Resilience thinking links closely to sustainability, acknowledging a dynamic external environment that requires individuals and systems to continuously and iterative adapt to changing circumstances, whether due to a changing climate or some other aspect of the operating environment [48; 49]. Modern organisation theory recognises the importance of different scales working together, with individuals working within broader systems and processes. It also recognises the importance of decision-making and communication processes and how these link with organisational goals [50]. Scott [46: p. 16] argued that the essence of modern organization theory is that the organisational system is comprised of a complex array of interactive variables, and to understand the system, the principal parts and their "mutual dependency" must be identified, along with their relationship to the main system processes. Adding resilience thinking supports explicit recognition of factors external to the organisation, such as climate change-related health impacts and other organisations. It also means recognising that changes are occurring, and that uncertainty is not an excuse for inaction (see for example Hallegatte's [51] description of strategies to cope with uncertainties associated with climate change). It further recognises that system changes are possible without losing organisational identity (see for example Jacque's [52] description of Japan's response to forced engagement with the West in the 1800s). Resilience thinking and modern organisation theory both complement the researcher's view that sustainability will be enhanced when ROs, and their support for CCA and health, are regularly reviewed to reflect both environmental and institutional changes at global and national levels.

# 6.5. Methods

This research to assess value added by ROs to CCA and health in Southeast Asia is the final component of a larger project comprising detailed case studies of health sector CCA governance in Cambodia, Myanmar and Vietnam. This research builds on these national case studies and qualitatively assesses two distinct models of regional support for CCA and health;

1.) the ADB's project-based model, and 2.) the APRF's governance-based model. The initiatives investigated are ongoing for two reasons. First, until recently climate change and

health has received limited attention [e.g. 7], and the researcher is unaware of any completed regional CCA and health projects in Southeast Asia. Second, the APRF's climate change and health initiative does not have a defined a time horizon.

The research triangulates interview data with analysis of academic publications, policy documents and grey literature including annual reports, financial reports, evaluation documents and strategic plans. Twenty two in-depth, semi-structured interviews were conducted over an 18 month period between September 2015 and February 2017. Interviewees were selected for their direct experience and expertise, and their ability to comment on the ADB and APRF initiatives. They were all senior personnel with oversight of climate change and/or health portfolios, with well-grounded understandings of policy, climate change and health interactions. Respondents came from national health and environment ministries as well as from the ADB and APRF, or were expert environment and health observers with close links to the ADB and APRF. Research data was reviewed to gather evidence against each of the modified FAROCCCA indicators. Each indicator was rated, following the 'traffic light method' and qualitative assessment protocols [53]. The ratings were used principally as a means to highlight points of interest and comparisons between the organisations and their models of support. Each rating reflected the indicator wording. For example, where an indicator specified 'evidence of', lack of evidence resulted in a negative rating, but where an indicator specified a particular characteristic, lack of evidence of this resulted in a 'no evidence' rating.

This research had some limitations. First, despite the importance of understanding whether health and adaptation initiatives are achieving sustainable long-term outcomes, the ongoing nature of the initiatives precludes their measurement, as per Mitchell [54]. Thus the research relied on evidence of whether the assessed initiatives are on track to achieve their adaptation and health outputs. A second limitation related to the inclusion of perceptual indicators. These would be useful, for example, for the organisations to undertake self-assessments, but were outside the scope of this research.

# 6.6 Results

A narrative of salient results is presented here following the three components of FAROCCCA: organisational inputs, initiatives, and outputs. A summary of the full results is presented

below in Table 6.1, with Appendices 2 and 3 detailing evidence against each indicator for both organisations. Interview data is cited using interviewee numbers. For example, interviewee number 6 is cited as [#06].

### 6.6.1 Inputs

This research examines two models of support for CCA and health. The ADB primarily provides support through grant-based projects for health sector CCA. In contrast the APRF uses mutual peer-pressure to encourage national ownership of environment and health. As shown in Table 6.1, the ADB and APRF rate similarly for governance and leadership and collaboration capacity, while the ADB has significantly better resourcing than the APRF.

Both organisations have mandates supporting CCA and health initiatives, though this was not always the case. According to the APRF charter, "[g]overnments [at all levels] should address the health impacts and implications of [...] priority areas of environmental concern" including "[c]limate change" [9: Article 3]. In contrast, the ADB Charter specifies that "[o]nly economic considerations shall be relevant to" decisions of "[t]he Bank, its President, Vice-President(s), officers and staff" [55: Article 36(2)]. However, 14 years later, the ADB's 23 page 2008 – 2020 strategic plan included three quarters of a page on environment and committed to support developing member countries adaptation "to the unavoidable impacts of climate change—including those related to health" [12: p. 14]. This is in line with the growing global recognition of the importance of climate change and health concerns [7], and highlights the convergence of the two ROs' mandates.

APRF members are health and environment ministries, with resources and responsibilities as allocated by their governments. While recognising Southeast Asian developing country resource constraints [#02], the APRF pursues the vision of encouraging national ownership of environment and health concerns, such as erratic rainfall resulting in food insecurity [#19], by finding a,

"mechanism where they [member states] have to do [environment and health-related work]. So for example, like we inviting them for a regional meeting, to update – is a kind of informal subtle way for them [to have the encouragement] to do the [environmental health] country profile [#06].

This subtle encouragement appears to be having some success, "from the [last] high level meeting [...] WHO and UNEP asked [...] members to develop or update the environmental [health] country profile, and then send back [...] – we already send" [#10; similarly #11].

Likewise, commenting on the APRF initiated National Environmental Health Action Plan (NEHAP) initiative, a senior Vietnamese government official reported that "I think in the future our government will support NEHAP [but] I think we have to do a lot of things to change [...] our government['s] idea[s]" [#07]. This comment also reflects the current low prioritisation of environment and health at the national level, with the NEHAP recently rejected at the ministerial level because of disagreements about which ministry should be responsible [#05]. Similarly, in Cambodia, CCA and health is only prioritised where international funding is available [#09]. Even though government officials may be supportive of action on environment and health, a lack of prioritisation reduces national resources available for environment and health work.

In contrast to the APRF, the ADB provides resourcing for environment and health work it supports. For example, in June 2015 the ADB announced a \$4.4 million grant for its Strengthening Resilience to Climate Change in the Health Sector in the Greater Mekong Subregion (SRCC) project [56]. Despite the funding, the ADB faces issues with "soft component[s] of the health sector project[s]" because national governments "love to borrow for mortar and equipment and bricks, but they are very reluctant in investing in capacity development", and grant finance for the soft components is limited [#16]. Another ADB limitation is in-house technical capacity, thus experienced consultants are engaged for particular projects. For example, the consultants managing the SRCC project include authors of multiple academic climate change and health publications focussing on South East Asia [e.g. 57; 58]. While the ADB facilitates resourcing for CCA and health projects, the APRF has both climate change and health-related legitimacy, based on accountable

Table 6.1: Results Summary for Two Models of Regional Support for National Level Adaptation and Health

RATING SYSTEM									
×	No								
<b>♦</b>	To some extent								
$\square$	Yes								
(NE)	No evidence								
(PI)	Perceptual measure or measure not rated in this paper								

	(PI) Percept	tual mea	asure c	r mea	sure not	rated in	n this paper							
COMPONENT ONE: Input Effectiveness														
		APRF						ADB						
SI	SUB-COMPONENT		×	<b>♦</b>	(NE)	(PI)	# of indicators	$\square$	×	<b>♦</b>	(NE)	(PI)	# of indicators	
1.	Goals	3	1	-	-	-	4	1	3	-	-	-	4	
2.	Governance and leadership	4	-	2	-	2	8	4	1	1	-	2	8	
3.			3	2	1	1	11	8	1	1	-	1	11	
4.	Structure, systems and processes	-	-	1	-	7	8	1	-	-	-	7	8	
5.	Research and collaboration capacity	4	-	-	-	-	4	4	-	-	-	-	4	
		COMPONENT TWO: Project/Initiative Effect							tiveness (20 indicators)  SRCC project					
			_		CCTWG					- Sr	cc proje	ect		
	SUB- COMPONENT	V	×	<b>♦</b>	(NE)	(PI)	# of indicators	$\square$	×	<b>♦</b>	(NE)	(PI)	# of indicators	
1.	Needs and goals	4	1	1	-	-	6	5	-	1	-	-	6	
2.	Scope	2	-	-	-	-	2	2	-	-	-	-	2	
3.	Logic, design and adequacy	1	1	-	-	-	2	2	-	-	-	-	2	
4.	Resources	1	2	-	2	-	5	4	-	1	-	-	5	
5.	Technical efficiency	1	-	-	-	-	1	-	-	1	-	-	1	
6.	Implementation	-	-	1	-	-	1	-	1	-	-	-	1	
7.	Monitoring and evaluation	-	2	-	-	-	2	-	1	1	-	-	2	
8.	Sustainability	-	-	-	1	-	1	-	-	-	1	-	1	
	COMPONENT THREE: Output I						tput Effective	eness (8 indicators)  ADB						
	SUB- COMPONENT	V	×	<b>♦</b>	(NE)	(PI)	# of indicators	$\square$	×	<b>♦</b>	(NE)	(PI)	# of indicators	
1.	Goal attainment	1	_	-	-	-	1	1	-	-	-	_	1	
2.	Research and knowledge management	2	-	-	-	-	2	2	-	-	-	-	2	
3.	Collaboration and advocacy	2	-	-	-	-	2	2	-	-	-	-	2	
4.	Education and training	2	-	-	-	-	2	2	-	-	-	-	2	
5.	Specialised advice provided	1	-	-	-	-	1	1	-	-	-	-	1	

processes and procedures, and expertise [#03; #10; #14], supported by the United Nations global health and environment agencies.

#### 6.6.2 Initiatives

The APRF's climate change thematic working group (CCTWG) is a forum for senior health and environment ministry personnel from countries in the region to meet, discuss and provide mutual support in addressing common climate change and health-related concerns. The ADB's SRCC project supports three greater Mekong sub-region (GMS) countries to reduce the vulnerability of their poor and marginalised populations to climate-related health risks, and is being implemented by a consultancy firm [40]. Overall the SRCC project rates more positively than the CCTWG, with 13 positive and 2 negative ratings out of 20 compared with the CCTWG's 9 positive and 6 negative.

The initiatives have some similarities. First, both include a capacity building focus. The SRCC project seeks to improve "government capacity to cope with adverse health impact[s] of climate change" [40: Online], and the APRF's CCTWG focusses on capacity building and regional knowledge management [59]. Second, in line with academic perspectives [e.g. 23; 37], both organisations recognise the importance of quantitative evidence to build momentum on climate change and health concerns. The ADB's SRCC project recommended the development of future plans "that include health impacts and evidence-based good practices on climate change and health for key sectors" [40: Online], and the APRF has produced a 55-page synthesis report of members' environment and health country profiles (EHCPs), including a five page chapter on climate change impacts [60]. Third, there is evidence that both initiatives fill an adaptation need. The CCTWG, because strengthening human resource capacity is considered as a priority issue for CCA and health [see, e.g. 57; 61; 62], and the ADB project documents include detailed information about climate change health impacts, including differentiation of causes between the three target countries.

Even though they are responding to adaptation needs, both initiatives face implementation issues, with the CCTWG challenges being larger than the SRCC project's. The CCTWG is working to build bridges between government sectors, but as one respondent noted, "2013 or 2014 – it was the first and maybe the only working group on climate change – thematic working group on climate change. We [are] so much behind in that" [#06]. Without specific,

measurable, achievable, realistic and time-bound (SMART) objectives, or monitoring and evaluation (M&E), possibilities for utilising the APRF's emphasis on subtle encouragement are constrained.

While the SRCC project is performing better than the CCTWG it too has had implementation challenges. For example, the project inception workshop was run a year after the initiative was scheduled to begin, and in March 2017, more than 18 months into its three year timeline, the project data sheet indicated expenditure of only US\$350,000 of the project's US\$4.4 Million budget [40]. There are also project design weaknesses. For example, the project aims to reduce climate change vulnerabilities of poor and marginalised populations, however this is not linked clearly to the project's objective of improving the coping capacity of governments to health-related climate change impacts. It is possible that some of these weaknesses relate to difficulties the ADB has with 'soft' project components [#16]. The discussion section of this research further analyses the weaknesses of the ADB's and APRF's CCA and health initiatives, and proposes a solution to improve them.

# 6.6.3 Outputs

The adaptation and health outputs of both organisations rated well. For example, both work collaboratively although their methodologies differed, with the ADB having some limitations in approach flexibility when working with countries in the region. For example, "our Vietnamese partner, it is the first time we've worked with them, and they don't understand the ADB procedures, and so because we work basically in one way – we're giving you money, and you have to do it this way" [#13], with [#14] making similar remarks regarding Myanmar. Comparatively APRF flexibility is greater, with a substantial amount of "back and forth through the focal points in the [national] agencies" to revise APRF operations [#03]. Similarly, the APRF successfully considered "ways of facilitating additional countries to participate in the Fourth Regional Ministerial Forum" [63: p. 2], so that, beyond the 14 original APRF members, there were an additional 20 countries represented in Manila [64], thus occasioning the forum's name change [65]. In contrast to the room for improvement in both organisations' CCA and health initiatives, overall there is evidence that both organisations are meeting their CCA and health objectives. A difference between the initiative objectives, and organisational CCA and health outputs is that both initiatives include a focus on capacity

building [40; 59], whereas the reported CCA and health results focus on readily measurable indicators such as access to safe water and sanitation or the production of policy documents [66; 67]. Building capacity is a targeted long-term outcome, in contrast to immediately measurable SMART objectives, leaving a gap between initiative goals and organisational reporting.

# 6.7. Discussion

Divided into four sections, the discussion triangulates the FAROCCCA results with academic literature and additional interview data, and argues that both the ADB's and APRF's CCA and health effectiveness would be improved if they worked together. First is an analysis of areas where each organisation's work could be improved, and second is a rationale for a collaborative approach including an outline of how it could be achieved. Third is an analysis of potential barriers to an ADB/APRF collaboration, and a final section analysing FAROCCA's performance and suggesting options for future research.

# 6.7.1 Improving regional organisation effectiveness supporting CCA and health

Through the APRF, with support from WHO and UNEP, governments across the region can meet to discuss climate change and health issues, reflecting "their national interests and foreign policy priorities" [28: p. 3]. While this may appear positive, and similar to commentary about WHO more broadly [e.g. 6], its potential is not being realised. While the lack of CCTWG meetings is indicative of low prioritisation of climate change and health, its re- endorsement at the Ministerial Meeting of the APRF in October 2016 (researcher's observation) suggests other factors have inhibited activity. For example, lack of SMART objectives combined with the absence of M&E reduces incentives for government officials to invest in CCTWG discussions, weakening linkages between the key personnel across the region, and thereby undermining the peer-pressure-based incentive structure used by the APRF.

Similarly, Biermann *et al.* [68: p. 52] argued that "precisely state[d] goals, criteria and benchmarks for assessing progress" make international treaties more effective, and Dahle [69: p. 40] found that a "lack of clear goals and tactics" can undermine initiatives. The APRF's member governments and secretariat have recognised the benefits of an action-oriented approach [#06; #17]. Thus, the APRF has been encouraging its members to develop EHCPs

and NEHAPs [66], but this approach has not yet been applied in the context of the CCTWG. Lack of targets and review frameworks make measuring progress challenging, thus constraining opportunities for process or system adjustments to reflect poor progress or changes in the external environment.

While the APRF CCTWG has struggled, the ADB has designed its own climate change and health project. Relevant countries were consulted, however authorship of project documents resided with the bank itself [e.g. 70]. This may be ideal from an expert knowledge perspective, but has left national government agencies feeling alienated, as if they are project conduits, rather than project partners (researcher's observation, see also Kapiriri [34] for arguments about development partners and legitimacy of priority setting in low income countries). This is particularly problematic in a region where government officials see project design as a key aspect of achieving climate change-related outcomes [#20]. Additionally, perceived legitimacy is very important in a region such as Southeast Asia, where non-interference in individual countries internal affairs is a recognised ideal [10; 11]. Lack of perceived legitimacy can significantly undermine project progress and success. Limited involvement of key government agencies in initial project design can reduce its legitimacy in the eyes of key stakeholders, leading to discord and distrust and undermining the SRCC focus area of capacity building.

Additionally, linked to multi-lateral development banks such as the ADB, not being "well equipped to deliver at the local level" [#01], a consultancy firm was employed to manage the SRCC project, adding in additional levels of hierarchy and further reducing flexibility [e.g. 71]. For example, government agencies were informed that contractual arrangements between the consulting firm and the ADB made international consultants responsible for drafting key project implementation documents (pers. comm., Feb 2017), further alienating those agencies and reducing project legitimacy in their eyes, leading to frustrations and project delays. The ADB and APRF have different areas of strength and weakness and by working collaboratively they can address the weaknesses of both models of support.

Another issue affecting the operational landscape is convergence of the mandates of the two organisations [9: Article 3; 12: p. 14; 55: Article 36(2)]. For ROs with membership and mandate overlaps, either coordination and cooperation, or duplication and competition for resources can result [28]. For the ADB and APRF a conscious effort to coordinate is important, because

without it resource competition is likely for a combination of three reasons. Firstly, the ADB's adaptation funding is predominantly externally grant-based [#12], as is the case for the SRCC project [70], so if the APRF seeks CCA and health funding it will bring the two organisations into competition, as per Nolte [28]. Secondly, as part of their results-oriented approach the APRF has discussed seeking donor funding [#02], and thirdly, it is likely that any future donor funding would include funding for adaptation and health because of the increasing global prioritisation of CCA and health [8]. Despite the importance of cooperating, and the nine years since their mandates converged, cooperation to date has relied on individual initiative [#14]. From a resilience thinking perspective, this highlights a lack of institutional responsiveness to changing circumstances. Institutionalising and codifying ADB and APRF coordination would be a way to manage inter-organisational resource competition risk.

Effective coordination between ROs with mandate and membership overlaps means working collaboratively towards the same goals, reflecting the importance that modern organisation theory places on communication processes. Because it is more than information sharing, coordination requires frameworks [25], such as institutions to coordinate decentralised governance [26], as well as incentives such as specific timebound goals and reporting requirements. Despite the costs of incentive structures or new institutions, coordination benefits include reducing duplication of effort, such as the seaports built every 40-50 kilometres along Vietnam's central coast because of poorly coordinated provincial planning [72].

Likewise, poor ADB and APRF coordination of CCA and health support means duplicated effort in national agencies responsible for health and climate change concerns. For example, the agencies working on APRF initiatives (attending meetings, reporting on those meetings, designing data collection programs, drafting NEHAPs), are separately working on an ADB adaptation and health project (attending meetings, reporting on those meetings, providing input to project design, negotiating roles and responsibilities for projects). ADB and APRF collaboration towards CCA and health goals, would mean under-resourced national agencies in Southeast Asian developing countries would have one instead of two sets of meetings, and would only need to use one administrative system. ADB and APRF CCA and health coordination will require an investment from them, but would provide benefits for national environment and health focal agencies.

# 6.7.2 Choosing to collaborate

Stemming from their complementarity, there are four reasons for the ADB and APRF to collaborate on CCA and health, despite incentivisation and framework costs. First, the ADB has project management expertise that the APRF lacks, as Table 6.1 shows. More broadly, the ADB describes itself as having a comparative strength in infrastructure project management and regional cooperation [73], and it has demonstrated project success supporting development of environmental impact assessment (EIA) procedures for China, so that China now has "one of the best EIA systems in the world" [#04]. While the APRF lacks the ADB's project management expertise, it brings a visionary approach and methodology to building national ownership of health and environment concerns. Second are the existing interorganisational links. For example, members of national governments across Southeast Asia are involved in initiatives originating from both organisations; ADB personnel attended the APRF Ministerial Meeting in Manila in October 2016 [64], ADB consultants have attended APRF Health Impact Assessment TWG meetings [#14], and the ADB provided financing when the APRF was established in 2007 [#02]. Thirdly, when there are varying levels of resourcing ability, expertise and/or legitimacy, organisations should work together, as per Scott's "mutual dependency" [46: p. 16], and Brosig's rational choice [31]. The ADB has access to significant direct and grant-based financial resourcing, while the APRF brings legitimacy as well as long-term expertise in public health and climate change from across the region [#14]. Finally, a CCA and health collaboration would formalise the convergence of the two CCA and health mandates. The differences in expertise, resourcing ability and existing links between the two organisations provide solid reasons for them to work together to support CCA and health across Southeast Asia.

To ensure success, a detailed work plan defining organisational roles and responsibilities and the goals of the cooperative effort will need to be developed. To satisfy the framework requirement of Resurreccion *et al.* [25] and Saito [26], each organisation should assign coordination responsibilities to one department, incentivised with reporting requirements that include assessment criteria. Building on the similarities between their climate change and health mandates, and thus simplify initial coordination complexities, the CCTWG should be the entry point for an ADB-APRF collaboration. As an initial collaborative step, the CCTWG and the ADB's Sustainable Development and Climate Change Department could foster cross-

membership, and work towards a standardised administrative interface, such as established between the European Union and the Council of Europe [30]. There is a clear window of opportunity for this, as the CCTWG has not met since December 2013, and is in need of reinvigoration following its re-endorsement at the APRF's 2016 Ministerial Meeting. Collaboration will allow the ADB to trial an alternative model of supporting national CCA and health measures, collaborating with national governments both to define the terms of their relationship and to set priorities, thereby enhancing the ADB's perceived CCA and health input-legitimacy [e.g. 33; 34]. With the CCTWG as an entry point, the organisations can each contribute in their area of strength, and early collaboration success re-invigorating the APRF's CCTWG would support further collaboration on other Southeast Asian environment and health concerns.

# 6.7.3 Constraining factors

There are a number of hurdles requiring negotiation in order to make a CCA and health collaboration viable. First are the existing coordination difficulties between the ADB and APRF [#14]. In the past coordination has relied on individual initiative, however institutionalisation of coordination requirements is more durable, and will avoid coordination gaps when no-one takes personal initiative. Coordination reporting requirements will help ingrain coordination habits, thus helping to gradually overcome resistance. Second, the ADB has a lack of flexibility in how it deals with national government agencies [#13; #14]. However mandate convergence shows that ADB objectives can shift, and the ADB does work with outsiders, thus with suitable arguments institutional support is likely to be forthcoming. Third, the APRF visionary approach only includes health and environment ministries. This is problematic because, for example, in Vietnam the planning ministry decides on national funding priorities [#22]. Therefore the APRF's ability to support the development of national environment and health ownership is constrained because key decision-making ministries/bodies are not involved, and may not have a good awareness of environment and health concerns. For example, Resurreccion et al. [25] argued that Vietnam's planning and investment ministry does not have climate change expertise, and Myanmar's energy ministry mandate is energy security, with climate change just a minor consideration [#21], leaving little space for CCA and health concerns. Fourth, relatedly, the APRF faces funding constraints, with available funds "mostly used for the travel of participants from developing countries to come to these meetings"

[#02], leaving little room for increasing the number of ministries involved. Financing is a key ADB strength, so an ADB-APRF collaboration could remove this funding limitation, allowing involvement from other key ministries.

#### 6.7.4 FAROCCA Performance and future research

This research used a modified form of FAROCCCA, which was originally developed to assess ROs supporting CCA in small island developing states. Its use in this research shows it can be adjusted across geographies and is not discipline-specific. There were some limitations in the use of the modified FAROCCCA. Particularly, while the independent assessment minimised the likelihood of researcher bias it also limited the perceptual information that could be gathered and analysed. Several of the modified FAROCCCA's sub-components included perceptual indicators, but the structure, systems and processes sub-component was most affected, with seven of eight indicators being perceptual. In order to assess these without loss of assessment objectivity the modified FAROCCCA could be used by an officially sanctioned independent evaluator. Other than this observation, use of the modified FAROCCCA provided significant insights into the APRF's and ADB's CCA and health endeavours, ensuring the two organisations were thoroughly assessed. While many of the results were expected, others, such as the ADB's M&E results, were surprising. The legitimacy results suggest that FAROCCCA could be further modified to include more nuanced legitimacy indicators.

This is the first research into the role of ROs supporting adaptation and health across Southeast Asia. As such it should stimulate and inform debate about the most effective ways for regional engagement with CCA and health issues, and should not be limited to Southeast Asia. Four options for future research are identified here:

- As many Southeast Asian countries are confronting decentralisation issues [74; 75;
   76], future research could investigate the possibility that the CCTWG could support the strengthening of decentralisation programs, through its focus on CCA and health.
- Organisation sanctioned re-application of the modified FAROCCCA including the use of the perceptual indicators would provide additional information on the organisations' input legitimacy.
- This research highlights regional organisational legitimacy implications as an area for further investigation.

Some individuals naturally seek to coordinate and work with others [e.g. #14], but it
is not a universal trait. Future research into coordination should include not just
suitable mechanisms, but also how to identify as well as attract individuals who are
most likely to enhance the outputs and outcomes of those coordination mechanisms.

# 6.8 Conclusion

This research makes four primary contributions to the academic literature on CCA and health. First, by using a modified version of FAROCCCA to qualitatively assess regional contributions of two organisations to adaptation and health highlighted the framework's broad applicability. Second, this qualitative assessment of two regional models shows that there are existing weaknesses in both project-based and governance-based models of regional support to the national level in Southeast Asia, which if addressed would improve adaptation and health outcomes across the region. Third, this research demonstrated that these weaknesses could be addressed through institutionalised coordination and collaboration. Doing so could help address perceived legitimacy issues that were highlighted as an issue in this research. Legitimacy is an issue of high importance in Southeast Asia, because non-interference in individual nations' affairs has been codified as a regional ideal. Institutionalising coordination beteen the ADB and the APRF could begin with a focus on the ADB's Sustainable Development and Climate Change Department and the APRF's CCTWG. Coordination challenges exist around the world, at all levels, and therefore the results presented here will be applicable to regional organisations globally that have mandate overlaps and low levels of coordination. Fourth, this demonstration further shows that ROs can effectively work across the region on adaptation and health issues despite the Southeast Asian preference for the cooperation end of the regional cooperation – regional integration spectrum. The research presented in this paper discusses coordination problems, which transcend regions and governance arrangements, and is thus applicable to regional organisations working in other areas of the world and in sectors other than adaptation and health.

### 6.9 Declarations

Ethics Approval: The ethics component of this research was approved by the Humanities and Social Sciences Delegated Ethics Review Committee at the Australian National University on 16th July 2015, with protocol number 2015/423.

Consent for publication: Not applicable

**Availability of data and material:** The datasets supporting the conclusions of this article are included within the article (and its appendices), with the exception of interview transcripts. These are not made available as complete transcripts may aid identification of research participants.

Competing Interests: One regional organisation assessed for its adaptation and health support is the Asian Development Bank. Subsequent to conducting the research on which this manuscript was based, the author has been paid for a ten day contract as a resource person by the Asian Development Bank to provide support for a regional Southeast Asian health impact assessment project.

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**Author's Contributions:** This was a sole author paper. The author was responsible for all aspects of the research including research design, interviews, transcription, document and literature reviews, data analysis, drafting and reviewing the manuscript.

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# Part E: Conclusion

# **Chapter 7: Synthesis and Conclusion**

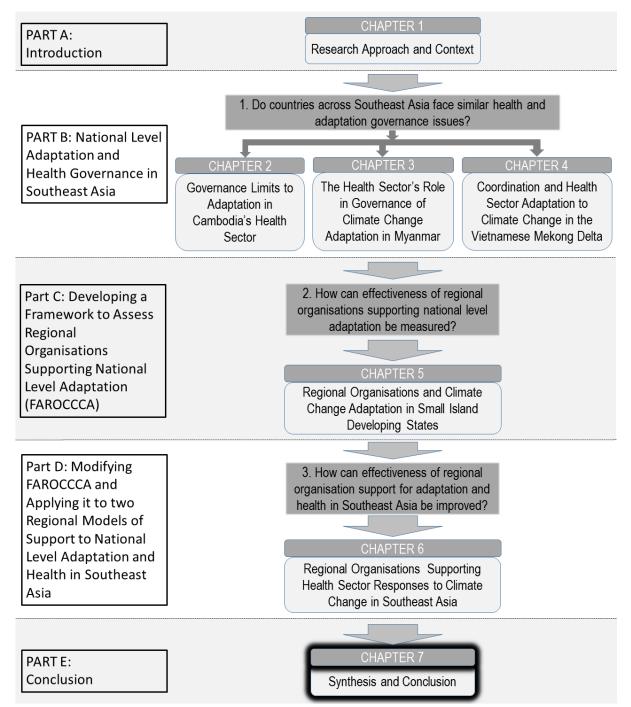


Figure 7.1: Thesis Process Diagram (highlighted chapter indicates current location in thesis)

# 7.1 Setting the concluding scene

Climate change adds significantly to the stress faced by individuals as well as communities, countries and regions (UN 2017). Combined with this, human and population health supports, not just social, but also economic well-being (Peralta and Hunt 2003, Smith *et al.* 2014). As these authors make clear, poor health lowers productivity as well as increasing treatment-related costs. Additionally, healthier populations are more resilient in the face of climate change (Smyle 2014). Thus, addressing health-related impacts of climate change, both within and outside of the health sector, directly supports two of the three core components of sustainable development (WCED 1987, Hajer *et al.* 2015), and has strong links to the environmental component of sustainable development. Governance is a crucial component of addressing health-related climate change impacts because, for example, there is a need for cross-sectoral collaboration. While there is a need for different sectors to work together, government 'silos' typically constrain cross-sectoral coordination and collaboration. In this context, this research filled a gap in the literature about assessing the effectiveness of ROs that support national level adaptation and health initiatives.

# 7.2 Research findings

This final chapter of the thesis draws together the findings of the individual thesis chapters to answer the research questions posed in the introduction. The main findings from each chapter are presented below in Table 7.1, with this chapter distilling and synthesising these results. As the main findings are drawn from the individual, stand-alone publications, there is a degree of repetition between these and the synthesis presented here.

Stemming from the overall research question, "How could the effectiveness of regional organisation support for national level adaptation and health in Southeast Asia be improved?", ten sub-questions were developed. These ten questions were addressed from three different perspectives. Firstly, six of the ten sub-questions focussed on adaptation and health at the national level in three Southeast Asian countries, revealing regional adaptation and health-related governance similarities and differences. The methodolgy for this phase of the research used open ended questioning in in-depth semi-structured interviews, thus allowing interviewees to discuss those factors they saw as important. Governance of adaptation and health was examined in Cambodia, Myanmar and Vietnam. The similarities in

governance issues relating to adaptation and health provide a strong rationale for RO support, and the differences are important for informing this support.

Secondly, CCA governance was examined outside of Southeast Asia, focussing on ROs supporting national level CCA in small island developing states. This phase of the research was used to develop FAROCCCA, in order to assess RO effectiveness, and addressed two research sub-questions. Finally, FAROCCCA was used to assess ROs in Southeast Asia that are supporting national level adaptation and health, with the final two research sub-questions addressed in the publication that resulted from this research and assessment.

Table 7.1: Main findings of each thesis chapter

#### **Main Findings** Part B: National Health Sector Adaptation in Southeast Asia 2. Governance Limits to Poor cross sectoral coordination and a lack of prioritisation of human capacity Adaptation in development (which inhibits cross-scale coordination) both constrain and Cambodia's Health limit adaptation and health options in Cambodia. Sector, Gilfillan (In Press) While the government of Cambodia appears to be prioritising cross-sectoral coordination for sustainable development, a lack of incentive structures will challenge the success of the National Council for Sustainable Development. The ability of the health ministry to implement policy is limited because of factors including sub-national health officials supplementing their low incomes with work in the private sector, which reduces the time they have available for their official duties. 3. The Health Sector's Responding to disasters is a pressing concern in Myanmar, and has left little Role in Governance of time for considerations of longer-term CCA. Climate Change In both disaster management and CCA, there is poor coordination across Adaptation in Myanmar, scales and sectors, which inhibits effective preparation, planning and Gilfillan (Under Review) implementation of responses. The health sector has both vertical and horizontal penetration in Myanmar, and could use this to capitalise on its disaster management experience to play a role coordinating disaster management and CCA. 4. Coordination and Mechanisms to encourage and support cross-boundary, cross-sectoral and health sector adaptation cross-scale coordination are lacking in Vietnam, which all inhibit health sector to climate change in the adaptation in the Mekong Delta. Vietnamese Mekong While these coordination issues are recognised by the Vietnamese Delta, Gilfillan et al. government, efforts to address them have met little success. (2017)There are options for resolving these coordination issues by looking beyond current norms in Vietnam. For example, the South West Steering Committee has the necessary linkages across sectors, boundaries and scales to improve adaptation and health outcomes across the Mekong Delta.

Part C: Developing an assessment framework for regional organisations supporting climate change adaptation

# 5. Regional Organisations and Climate Change Adaptation in Small Island Developing States, Robinson and Gilfillan (2017)

- There are issues of coordination between the two ROs examined in the Pacific that are supporting national level CCA. These coordination issues need to be resolved.
- The three ROs assessed all have project implementation weaknesses, indicating that the regional level is not the best level from which to directly implement projects.
- ROs should be focussing on creating enabling environments for CCA at the national level through provision of information, supporting national governments to develop ready-to finance CCA projects, and helping to build national level CCA-related capacity.

# PART D: Modifying FAROCCCA and applying it to two regional models of support to national level adaptation and health in Southeast Asia

# 6. Regional Organisations Supporting Health Sector Responses to Climate Change in Southeast Asia, Gilfillan (Under Review)

- The framework developed in Chapter 5 has broad utility for assessing the effectiveness of ROs across sectors and geographies.
- Well designed, institutionalised and incentivised coordination between ROs reduces redundancies, and in resource constrained settings can reduce the administrative burdens on partner government agencies.
- Legitimacy is an important characteristic, without which RO effectiveness can be significantly reduced.
- Addressing the weaknesses of the two models of regional support to national level adaptation and health in Southeast Asia by bringing together their complementary strengths would result in greater organisational effectiveness for both organisations, as well as benfiting adaptation and health across the region.

# 7.3 Answering the research questions

The research conducted in preparation for this thesis emphasised the diversity that exists across Southeast Asia in relation to governance as well as climate change responses. For example, the three national case-studies included communist Vietnam, a notionally democratic Cambodia that has had the same Prime Minister since 1997, and Myanmar, which is still in transition to civilian government following 20 years of military dictatorship without a constitution. In terms of policies relating to CCA there is also a wide variety. Vietnam has been extremely proactive in developing adaptation policies, with each province having a Provincial Action Plan to Respond to Climate Change, whereas in Cambodia, while climate change policy documents acknowledge the need for sub-national planning, budgeting and implementation, the focus is on national level climate change responses and funding (e.g. NCCC 2013). In Myanmar, the urgency of responding to disasters has overshadowed longer-term planning, although a number of national level adaptation policies and strategies have been produced, such as those required by the UNFCCC, as well as a national strategy and action plan to address climate change (e.g. MOECAF 2012, MOECAF 2015, MONREC 2016).

Despite these differences, there are strong similarities in the governance issues faced across the three case-study countries in relation to adaptation and health.

The overall research question that this thesis was designed to answer was, "How could the effectiveness of regional organisation support for national level adaptation and health in Southeast Asia be improved?" From a systems and resilience thinking viewpoint, this question signifies interaction between supra-national ROs and national governments. Therefore, the first phase of the research focussed on developing an understanding of the relationships between adaptation and health and national governments in three Southeast Asian countries. Following this, a framework for assessing regional organisations that are providing support for national level CCA was developed, and then applied to answer the over-arching research question. Overall, this research project concluded that ROs should seek to enhance their inter-organisational coordination, both for immediate benefits and because it would enable them to better support coordination within countries. The major results of the research questions posed for each chapter of the thesis, from national adaptation and health to the contributions of ROs to adaptation and health in Southeast Asia, are presented in the following sections.

# 7.3.1 Adaptation and health in Cambodia

Chapter 2 was the first of the five core chapters of this thesis. It is the first of the three foundational chapters, and was titled, "Governance Limits to Adaptation in Cambodia's Health Sector". It used a networking approach and an open ended, semi-structured interview style to explore governance issues relating to adaptation and health. Interview data was then cross-referenced with analysis of climate and health-related policy documents, analysis of governance structures and analysis of academic and grey literature. Policy documents analysed included Cambodia's NAPA and the National Strategic Plan on Disaster Risk Management for Health 2015-2020, and governance structures included the NCSD and cross-sectoral technical working groups.

The aim of gathering data was to answer two research questions in order to provide insights into the links between the operations of the Cambodian government and adaptation and health in Cambodia. The first of these research questions was, "Are there governance

obstacles that are limiting adaptation and health in Cambodia?" Chapter 2 of this thesis revealed two governance obstacles that are limiting and constraining adaptation and health.

The first of these was a low level of cross-sectoral coordination. This was highlighted as an issue because of the numerous health determining sectors, such as water management and agriculture, over which health authorities have limited influence. In Cambodia, technical working groups are used widely as a means to coordinate and collaborate across sectors. However, lack of prioritisation for their operation on the part of the government as well as project-focussed donor operations combine to undermine their effectiveness, as described in the flowchart in figure 7.2 below:

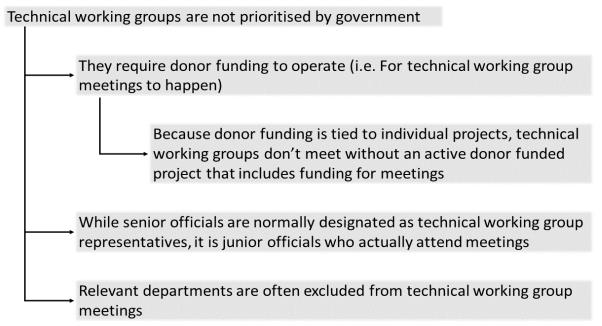


Figure 7.2: Flowchart - what happens when government does not prioritise coordination

There have also been challenges for coordination because even where technical working groups have been meeting and engaging with, for example, adaptation and health issues, their role is to achieve technical coordination. This is problematic because of a discontinuity between the technical levels within government ministries and the political level (the NCCC). These challenges to the operations of technical working groups also fit into a larger picture of vertical governance arrangements where officials have a tendency to protect their ministerial or departmental mandates to the detriment of activities that span mandates, such as is the case for health determinants that are affected by climate change.

The second research question addressed in this chapter of the thesis was, "What does the future for health and adaptation in Cambodia look like?" With a need for coordination across sectors to address climate-affected health determinants, and a need for cross-scale coordination to implement government plans at the local level, there are both positive and less positive signs in Cambodia. For example, at the time the research for Chapter 2 was conducted, cross-sectoral coordination issues were being addressed by the government through the establishment and funding of the National Council for Sustainable Development (NCSD). The government establishing the council indicated an issue of interest to the government, and provision of funding showed sustainable development as a government priority. The NCSD has broad representation across government ministries, and also links the technical level with the political level by including a technical focal point from each ministry for council meetings, thus recognising that different levels need to work together and understand each other's roles and responsibilities. The NCSD also seeks to address cross-scale coordination issues, by including provincial governors in the council. Thus there is a coordination structure (as per Resurreccion et al. 2008), but there is a lack of evidence of incentives. Incentives should include clear coordination and non-coordination-related goals with timelines, responsibilities and reporting requirements.

Even with nascent efforts to address cross-scale coordination in Cambodia, including for adaptation and health, it remains a complex problem that is unlikely to be resolved in the near-term. The NCSD provides a coordination structure that lacks necessary incentives, and coordination is further undermined by human resource capacity issues ranging from a long-term lack of prioritisation of capacity development and education by the government, to poor financing and low wages at sub-national levels. Low wages push district health workers to supplement their incomes by working in the private sector, thus reducing the time they have available for their official government role. A focus on education and capacity development is undermined because of the long timeframe for a political or economic return. For example, while the government is willing to invest in school infrastructure because people can see the infrastructure and know their government is looking out for them, it does not want to risk investing in people because lack of immediate and tangible dividends could mean fewer votes at the next election. Thus, at sub-national levels, the health sector does not have enough well

trained people or the financial resourcing to implement policies developed at the national level.

## 7.3.2 Adaptation and health in Myanmar

As with the previous chapter, semi-structured, open-ended style interviews were used for the research for Chapter 3 in order to explore adaptation and health governance issues in Myanmar. Likewise, the interview data was cross-referenced with climate and health-related policy documents, and previous Myanmar-focussed research. The research was designed to answer two primary questions. The first of these was, "What are the primary governance factors that constrain and limit adaptation and health in Myanmar?" Three constraints identified in this research were cross-scale and cross-sectoral coordination issues, and reactive policy making.

Cross-scale governance is a major issue in Myanmar. Following decades of unrest across the country, and a dictatorial military rule that did not focus on provision of services such as education and health, many areas of the country, for example, developed their own 'ethnic' health organisations. Now, sub-national governments have a tendency to ignore directives from the national level that they find inconvenient. In apparent contrast, the history of military dictatorship has, more broadly, created an unquestioning culture of obedience, and so decisions are often pushed to inappropriately high levels. For example, Hiebert *et al.* (2016) observed too many decisions being referred to Aung San Suu Kyi, and during recent flooding emergencies, township health personnel were not able to make the decision to buy life jackets because there was no budget line item for them. This same military history has also left sub-national levels with limited budgeting and planning experience, with a resultant failure among local level planners to consider levels above and below (e.g. the views and needs of villagers, as well as the policy requirements of higher government levels).

Coordination across sectors is also an area for concern. At sub-national levels, different government departments have vertical penetration to different levels. For example, the health ministry has mid-wives located at the village-tract level, the Department of Rural Development has staff to the township level, and the Relief and Resettlement Department has staff down to the state/region level (see figure 3.2 in Chapter 3 for administrative levels in Myanmar). This difference in penetration inhibits coordination between ministries and

departments because of different levels of local understanding, as well as different levels of resourcing, authority, planning and budgeting experience (e.g. Adger *et al.* 2009, Faguet 2014). At the national level, work is duplicated, and coordination is poor because of a lack of personnel. Lack of cross-sectoral coordination is a big area of concern for adaptation and health in Myanmar because of the large influences that sectors such as disaster risk reduction have on health determinants, both directly and indirectly.

Disasters in Myanmar are the predominant climate change concern, however the urgency of dealing with disasters has led to reactive rather than proactive responses. Reactivity has extended to policy making, with Grundy *et al.* (2014) observing that Cyclone Nargis in 2008 is a primary factor driving health policy development. This approach is linked to Myanmar being a least developed country, however there is a growing awareness of the importance of preventive measures.

Within this context of limited cross-sectoral and cross-scale coordination as well as reactivity to extreme events, the health ministry and health sector are prioritised by the government of Myanmar. This prioritisation has a number of implications and effects, as shown in Figure 7.3 below:



Figure 7.3: Health is prioritised in Myanmar

The second question posed in this chapter of the thesis was, "What scope exists for the health ministry to play a role in addressing adaptation and health governance constraints?" In

answer to this question, the research revealed that the health ministry has a lot to offer towards adaptation and health governance, including for disaster management. The health ministry has both vertical and horizontal penetration, because of staffing down to the village-tract level. Health ministry staff also have a strong reputation with, for example, health ministry officials being recruited into and promoted to the top levels of other ministries such as the Ministry of Social Welfare, Relief and Resettlement.

The prioritisation of the health sector can be seen in the number of health personnel supporting development of climate change strategies and policies, such as Myanmar's NAPA. Additionally, the health ministry has a reputation for excellence in delivering emergency services when extreme weather events occur, which indicates its ability to implement policy at local levels. Thus, the health ministry would be well-placed to take on a role coordinating across scales and sectors for disaster management and CCA. This chapter of the thesis points to a clear window of opportunity for this to happen; the current period of transition and change in Myanmar would likely allow for the health ministry to take on an unconventional role such as this.

# 7.3.3 Adaptation and health in Vietnam

Chapter 4 of this thesis follows on from Chapters 2 and 3. Having identified coordination issues in two Southeast Asian countries, this third national case-study aimed to determine if coordination was also impacting on adaptation and health in Vietnam. Interviews were semi-structured, and used open-ended questioning. Interview data was, again, triangulated with policy documents as well as academic and grey literature. However, given the level of adaptation policy development in Vietnam, sub-national adaptation policy documents were analysed in addition to national and internationally-focussed documents. This allowed the opportunity to further explore the relationships between national and sub-national levels, and the research for this chapter was situated within the Vietnamese Mekong Delta. The use of open-ended questioning in interviews allowed early interviewees in Vietnam to discuss poor coordination between Mekong Delta provinces as a major area of concern that impacts on human health, because of the region's interconnected hydrology. Thus, the first of the two primary research questions addressed in this part of the research was, "What are the relationships between cross-sectoral, cross-scale and cross-boundary coordination and adaptation and health in Vietnam?"

Poor cross-sectoral coordination can be seen at the national level in Vietnam. There is a lack of an oversight structure to keep track of how different government agencies implement laws and ordinances coming from the national assembly (Thach 2014), and coordination in Vietnam is viewed as being synonymous with the authority to direct and control. This view ties to functional cooperation between national ministries based on individual ministry mandates, but does not support cooperation and collaboration between sectors. Thus, at the provincial level there have been failures to develop provincial level flood control strategies because flood responses fall into a gap between line department mandates (Garschagen 2015). In a similar fashion, district health authorities have been left out of project management of water-borne disease control initiatives because rural water supply is not a part of their mandate. Thus adaptation and health is suffering because health authorities don't have a mandate for involvement in health determining sectors, and this is compounded because Vietnam's health sector is weak compared with other sectors.

The weakness of the health sector also has ramifications for cross-boundary coordination and cooperation in pursuit of adaptation and health. For example, the 2016 regional socio-economic development plan for the Mekong Delta, designed to integrate environmental issues, including climate change, with both economic and social issues, mentions climate change only three times, and health does not get a specific mention. In addition, mechanisms for cross-boundary coordination are lacking, and a weak health sector makes the involvement of health authorities in cross-boundary negotiations unlikely, particularly because provincial health authorities don't have a mandate to work beyond provincial boundaries.

Cross-scale coordination issues are also evident in relation to health and adaptation. For example, while health is identified as a priority area in internationally and nationally focussed documents and strategies including the NCCS and the NAP-CC, its priority level in provincial adaptation plans in the Mekong Delta is quite low. Of the provincial adaptation plans reviewed, 90% included health-related activities, amounting to between 2% and 15% of total projects, and between 0.003% and 5.380% of proposed expenditure. The weakness of the health sector also inhibits implementation of adaptation and health activities included in these provincial plans. For example, the adaptation-related water-borne disease project referred to above would be more effective if health authorities (with their greater

understanding of the epidemiology and implications of water-borne diseases) were actively involved.

The second research question posed in this chapter was, "How could these three dimensions of coordination be addressed to improve adaptation and health outcomes in Vietnam?" The answer to this question is both simple and complex. In the context of the Mekong Delta, the SWSC is a communist party agency that has a regional role across the delta, and includes membership from the 13 Mekong Delta provinces. The SWSC has the technically capacity to address all three coordination dimensions. A number of authors such as Tran *et al.* (2015), have suggested its suitability for coordination across provinces in relation to climate change responses. This committee could also address cross-sectoral coordination through its institutional links to the 13 Provincial People's Committees, whose members include the provincial heads of line ministries. Finally, it has the links down to the provincial level and up to the national level (the chair of the committee is a Deptuy Prime Minister of Vietnam) that would enable it to support better cross-scale coordination.

Despite having the networks in three dimensions to support coordination, there are complexities. The SWSC is not a government agency, and does not receive funding through the national budget. There would also be strong resistance by national ministries, such as MONRE and MARD, to the SWSC officially coordinating adaptation, including adaptation and health. This is because Vietnamese ministries are protective of their mandates, and these ministries have a large stake in Vietnam's responses to climate change. Additionally, because it is not a government agency, the committee does not have any official authority over other actors. Thus, the argument for the SWSC to take on a role to coordination across boundaries, sectors and scales is primarily made to encourage debate about coordination issues that go beyond existing Vietnamese norms.

### 7.3.4 Synthesising the results of Part B of the thesis

The answers to the six questions posed for the three national level case-studies described above highlight a number of key points when considered from the perspective of how ROs can most effectively support national level adaptation and health. These points are, firstly, that despite varieties in geography, climate change impacts and governance arrangements between the three countries, poor coordination is a major governance factor inhibiting

adaptation and health in all three countries. For Cambodia, the primary coordination issue was cross-sectoral coordination, but with cross-scale coordination issues also evident. For Myanmar both cross-scale and cross-sectoral coordination were both constraining adaptation and health. Finally, in Vietnam cross-scale and cross-sectoral issues were a concern, however cross-boundary coordination issues were also a factor constraining effective adaptation and health.

Despite these similarities, a single solution to improve coordination across the region would not be effective because of the differences between the three case-studies. For example, while Myanmar's health ministry is in a position to take on a role coordinating disaster management and CCA, this would not be an effective solution in either Cambodia or Vietnam. Thus regional support across Southeast Asia for adaptation and health governance could likely focus broadly on improving coordination across sectors and scales, however the detail of support should differ according to the particular circumstances in each country.

## 7.3.5 Developing a regional organisation assessment framework

Chapter 5 of the thesis was a deliberate step away from the Southeast Asian focus of the overall research question and the three national case-studies. This chapter was informed by modern organisation theory and neo-functionalism. Desk-based research was used to develop FAROCCCA, and then a combination of project and policy document analysis and interview data were used to assess three ROs supporting national level CCA in the Caribbean and Pacific regions. The first of the two primary research questions addressed in this chapter was, "How can we assess the effectiveness of regional organisations supporting climate change adaptation activities within nations?" Addressing this question outside the health sector and outside Southeast Asia ensured a more versatile and robust framework, able to span geographies and sectors.

The first step toward answering this question was a desk-based review of the literatures on 1) regional organisations, and 2) organisational effectiveness. This literature review highlighted that "regional organisations are created to explicitly promote cooperative action that addresses shared problems" (Robinson and Gilfillan 2017: 991). ROs can facilitate burden sharing, thus reducing transaction costs as well as being responsible for preparation and dissemination of specialised knowledge such as that associated with climate modelling (e.g.

Beattie 2013). Despite this, the review highlighted the complexities of assessing the effectiveness of organisations and that, consequently, a variety of assessment methodologies have been developed. These have included goal-oriented models that focus on whether or not objectives are being achieved (Etzioni 1960, Button *et al.* 1996), models that focus on an organisation's ability to acquire resources (e.g. Wolfe and Putler 2002), process focussed models concerned with efficient and effective use of resources (Daft 2012), and models that focus on the links and relationships the organisation has with its primary stakeholders (e.g. Connolly *et al.* 1980).

The second step was using these four basic models as a guide to develop the framework. FAROCCCA, as developed, has three components: input, project/program, and output effectiveness. Based on the work of 27 authors, the three components were divided into 18 sub-components and 62 indicators. A brief overview of the components of FAROCCCA is provided here:

- Organisational inputs are those factors that support the organisation to achieve its goals, such as resourcing (human and financial), organisational governance and leadership as well as collaborative capacity.
- The project/program effectiveness indicators focus on whether a project or program
  is filling a need, the design of the project, project resourcing, monitoring and
  evaluation as well as the efficiency of the project/program.
- 3. Organisational outputs consider whether the organisation is achieving its adaptation goals, whether it *actually* collaborates (as opposed to the organisational input of 'capacity to collaborate'), and whether the organisation produces, manages and disseminates knowledge products.

The second question that was addressed in this chapter was, "Do regional organisations operate at an appropriate scale to effectively support national level adaptation actions?" This question was used as the lens through which to trial the framework and establish its utility in assessing ROs supporting climate change adaptation, in a non-sector-specific context outside of Southeast Asia. FAROCCCA was applied to three ROs: the CCCCC in the Caribbean, as well as SPREP and SPC in the Pacific. Desk-based research was used to systematically analyse data including financial reports, project documents, independent evaluations and annual reports from the three organisations. The data was further enriched with in-depth semi-structured

interviews with regional and national level climate change officials from both the Caribbean and Pacific.

All three ROs rated well for their organisational inputs and outputs, but less well on their project/program effectiveness. Therefore, ROs may not be suitably located to directly implement adaptation projects. In combination with the interview data, it was concluded that ROs may more effectively support adaptation in SIDS by helping to create an enabling environment for adaptation at the national level. This could be achieved through avenues such as managing and disseminating specialised information (e.g. individual SIDS do not have the resources to host and run climate models), building national level capacities (particularly in relation to DRR), and assisting individual countries to develop ready-to-finance adaptation projects.

### 7.3.6 FAROCCCA applied to health in Southeast Asia

Chapter 6 is the defining chapter of the thesis. It is titled, "Regional Organisations Supporting Health Sector Responses to Climate Change in Southeast Asia", and was designed to answer the overall research question of this thesis: "How could the effectiveness of regional organisation support for national level adaptation and health in Southeast Asia be improved?" This question was broken into two component parts, with the first part being, "How effective are governance- and project-based models of support for national level adaptation and health in Southeast Asia?". This question reflected the nature of regional organisations supporting adaptation and health in Southeast Asia. There was also a natural progression from this question to the second component part of, "How could the support provided by regional organisations to national level adaptation and health in Southeast Asia be improved?"

The research in this chapter was founded on a combination of modern organisation theory and resilience thinking. The modern organisation theory component both tied it to Chapter 5, as well as maintaining a focus on the linkages and processes within individual organisations (Scott 1961, Asopa and Beye 1997). The use of resilience thinking ensured that a continuously changing external environment (e.g. related to other organisations and climate change) was considered (Folke *et al.* 2010, IPCC 2014a). On top of these theoretical underpinnings, an analysis of interview data was triangulated with policy and document analysis, including

financial and organisational reports, strategic plans and organisational charters, as well as a review of academic and grey literature relevant to adaptation and health.

Within this framing, the first research question considers the ADB and the APRF as the regional organisations supporting adaptation and health in Southeast Asia. The APRF, with its thematic working group on climate change and health (the CCTWG) provides governance-based support. In contrast, the ADB provides project-based support for adaptation and health via its resilience strengthening SRCC project among GMS countries.

The primary strengths of the APRF support for adaptation and health are 1) its vision of supporting national ownership of environmental health issues through 'subtle encouragement', including for adaptation and health, 2) that it has a high level of perceived legitimacy, and 3) that it has a strong knowledge base (within its member states as well as through its secretariat) to work from. Its major weaknesses are poor design of initiatives, as well as poor implementation and poor monitoring and evaluation. For example, the CCTWG has not developed specific, measurable, achievable, realistic and time-bound (SMART) indicators, has not met since December 2013, and the initiative has not been internally or externally monitored.

The primary strengths of the project-based ADB initiative relate to its research and collaboration capacity and engagement, as well as its resourcing and ability to acquire resources and project management abilities. Its major weaknesses relate to ADB control over project design and a lack of adaptation and health personnel within the ADB, both of which have had flow-on impacts on the SRCC project through reductions in perceived legitimacy. The lowered level of legitimacy has led to frustrations and delays in project implementation. For example, the SRCC project is being implemented by an external consulting firm because the ADB does not have the 'in-house' technical capacity. This has added additional levels of hierarchy and hence rigidity to the project, which has undermined relationships between the project implementers and key stakeholders such as government partner agencies. Thus, despite the ADB's strength in project management, the project assessed for this research was running significantly behind schedule, with its inception workshop held late, and only 8% of the project budget expended at the halfway point on the project timeline.

The solution to address these issues, offered by this research, is to combine the strengths of the two organisations. With its ad hoc efforts to incentivise collaborative efforts between health and environment ministries, the APRF model of support is a suitable base from which to work. This is further reinforced because the focus on control within project management practices (e.g. Kerzner 2013), will make it difficult for the ADB model to successfully incorporate legitimacy building components into projects, such as national level involvement in drafting project design documents. The CCTWG would be a useful starting point because, 1) it has not met for four years, indicating a need for re-vitalisation, and, 2) despite the CCTWG's shortcomings, the APRF ministerial forum in October 2016 re-endorsed it as an important initiative. A collaborative effort between the ADB and the APRF to revive the CCTWG would enable the ADB to trial an alternative model of engaging with national governments and their agencies, and offer its project management expertise, but be guided by the vision of the APRF.

To implement a collaboration between these two organisations, a number of hurdles need to be negotiated. Firstly, the two organisations need to have reasons to expend time, energy and resources working together. There are four primary reasons for this collaboration, as detailed in Table 7.2, below. They relate to the organisations' complementary strengths, a shared history and risk management.

Table 7.2: Reasons for an ADB/APRF collaboration

	Reasons	ADB (SRCC) Details	APRF (CCTWG) Details
1	Complementary Strength	ADB brings project management strengths	APRF brings vision and an ownership- building methodology
2	Complementary Strength	ADB has access to significant direct and grant-based finances	APRF has higher levels of perceived legitimacy, and brings 'in-house' expertise in public health and climate change
3	Historical and contemporary links	Existing inter-organisation links, such as the same national level personnel involved in both initiatives as well as ADB personnel attending APRF events	
4	Risk management	A collaborative partnership would formalise a convergence between the mandates of the two organisations, thus helping to manage the risk of future inter-organisational competition for funding	

However, as per the work of Resurreccion *et al.* (2008) and Saito (2011) regarding incentives for coordinating work, the two organisations will need to assign coordination responsibilities, including reporting requirements, to individual departments. This must be done in conjunction with a broader plan, because coordination without clear goals (e.g. SMART

objectives) is under-incentivised, untargeted and unlikely to support the achievement of organisational goals.

### 7.4 Contribution to theory and the academic literature

This research makes five primary contributions to the academic literature, that fit within the regional organisation, organisational effectiveness and adaptation and health literatures. These contributions are firstly to show that coordination is a major adaptation and health constraint, regardless of governance arrangements, ideologies or scales. Secondly, FAROCCCA was developed as a tool for assessing the contributions of regional organisations to national level CCA. Thirdly, FAROCCCA's utility was demonstrated across three regions, as well as across sectors. Fourth, this research demonstrated that integrating the strengths of project and governance approaches provides an avenue for improving regional adaptation and adaptation and health results. The final contribution of this research was to show that integrating project and governance approach strengths by coordinating collaboratively will enable ROs to better support countries to improve coordination across sectors, scales and boundaries. The details of these five contributions are provided below.

Firstly, the research shows empirically that adaptation and health is in no way insulated from issues of governance and coordination. Across governance arrangements, geographies, ideologies and between ROs, coordination was identified as a primary constraint impacting on adaptation and health (Gilfillan 2017, Gilfillan *et al.* 2017, Gilfillan (Under Review)-b, a). This finding is not surprising of itself, particularly because of the rich literature across a variety of disciplines in which coordination is highlighted as an issue, including international environmental governance (e.g. Biermann and Bauer 2016), climate change adaptation (e.g. Adger *et al.* 2009) as well as literature focussing on adaptation and health itself (e.g. Lesnikowski *et al.* 2013). This research is important, however, because of the empirical evidence it provides in Southeast Asia across three countries that are quite different in terms of development, governance and exposure to climate change impacts. Adaptation and health coordination issues need to be addressed, and the subsequent findings in this research suggest one possible avenue to address these issues.

The second contribution this research makes to the academic literature is FAROCCCA, the framework for assessing the contributions of ROs supporting national level CCA. This tool was

developed because of a lack of existing frameworks suitable for the task. It drew on the work of 27 authors across six primary disciplines including organisational effectiveness, climate change adaptation and disaster risk reduction, as well as environmental regimes and their governance (e.g. Young 2011, Oberlack and Neumärker 2013, Howes et al. 2015). The resulting framework includes three components, 18 sub-components and 62 indicators<sup>2</sup>. The components of FAROCCCA are inputs, projects or processes and outputs. Inputs to the organisation include factors such as organisational governance and leadership, as well as resourcing and ability to acquire resources. These are the factors which give the organisation its capacity to operate. Projects or processes are the discrete activities or initiatives that the organisation implements as stepping stones to reaching organisational objectives. These stepping stones have goals and objectives which are project-specific, but which should link to organisational goals and objectives. For a project or process to be successful it must have a suitable design and be suitably resourced with personnel, finances and materials, and also needs to be well implemented and monitored. The organisational outputs component focusses on whether organisational goals are being achieved as well as assessing organisational collaboration and research management.

FAROCCCA was employed, and performed well, assessing ROs in the Caribbean, the Pacific and in Southeast Asia. The framework supported data gathering from a broad range of sources, as well as data analysis to develop insights into RO strengths and weaknesses relating to CCA and adaptation and health. The primary shortcoming with using FAROCCCA was the lack of detail captured on the perceptual indicators. This shortcoming related more to the status of the researcher(s), rather than the contents of FAROCCCA itself. The framework explicitly recognises the importance of both perceptual and objective indicators of organisational performance (Sowa *et al.* 2004). Perceptual indicators are somewhat subjective, relating to those factors where an intimate knowledge of an organisation's internal processes and personalities can highlight decision-making linkages that may not align directly with official procedures, as well as ways that leadership drives and defines organisational culture (e.g. Taylor *et al.* 2014). Inclusion of the perceptual indicators could provide a more nuanced and detailed understanding of a particular organisation. Two

<sup>&</sup>lt;sup>2</sup> For use in the health sector in Southeast Asia, the modified version of FAROCCCA included one extra indicator that explicitly addressed perceived legitimacy. Thus, the modified FAROCCCA had 63 rather than 62 indicators.

methods for inclusion of perceptual indicators are, 1) for an organisation to use FAROCCCA to undertake a self-assessment, or 2) for FAROCCCA to be used to undertake an officially endorsed independent assessment.

The third contribution to the academic literature is the demonstration of FAROCCCA's utility across three different regions, assessing RO contributions to adaptation and health and in assessing RO support for more general national level CCA. These demonstrations highlighted and reinforced the work of other authors, such as Nolte (2014), who have argued that RO mandate overlaps need to be carefully managed to avoid inter-organisational conflict and competition. In the Caribbean there is only a single RO mandated to coordinate regional climate change actions, however in both the Pacific and in Southeast Asia, convergence of RO mandates has led to coordination issues that undermine RO support for CCA and adaptation and health. For example, in Southeast Asia, both the ADB and APRF are supporting adaptation and health initiatives with similar goals and working with the same government agencies in the GMS. This causes redundancies, particularly because the lack of institutionalised coordination and communication between the ROs assessed means the organisations' adaptation and health initiatives do not have opportunities to learn from each other. Further, it causes unnecessary extra administrative burdens on human and financially resourceconstrained health and environment agencies in developing country governments, as they work with two processes instead of one. It is also likely to lead to competition for adaptation and health funding in the future, which links to the Pacific, where there has been an apparent 'turf war' between SPREP and SPC with regards to funding for climate-related finance (Maclellan 2011). It is worth observing that more recently SPREP and SPC appear to have been looking for ways to improve their collaboration and coordination on climate and other sustainable development issues (SPREP 2017). This provides a model that the Southeast Asian organisations could observe and possibly emulate.

The fourth theoretical contribution of this research project is to provide an avenue for improvements of both project- and governance-based approaches to regional support for CCA and adaptation and health. The importance of improving their support should not be underrated. As an example, the Asian Development Bank has a target to double its climate financing over the period 2016 – 2020 (ADB 2016a), which is a reflection of global trends. While the bulk of the ADB's climate financing is likely to target mitigation through

infrastructure projects, the proportion allocated to adaptation will increase with the growing urgency of dealing with climate change impacts. Already the ADB (2015b) has acknowledged climate-related food security issues because of a heavy reliance on agriculture in Southeast Asia. Similarly, funding levels for adaptation and health initiatives will be guided by the global recognition of the important links tying health to both climate change and economic growth (Smith *et al.* 2014). Despite the expected increases in funding, however, financing will remain an adaptation constraint, and for this reason needs to be used efficiently and effectively. Thus, avenues to enhance the effectiveness of support provided by ROs, with their growing role in both CCA and adaptation and health, is crucial.

Firstly, a brief outline of the reasons for arguing for improvements to RO support for adaptation. Figure 7.4, below, provides a representation of typical arrangements for project-based organisational arrangements. Using data from the four ROs that used a project-based approach, a clear picture emerges of the need to complete projects within time and on budget. Financial and time constraints tie directly to project management theory (e.g. Kerzner 2013), providing key incentives for the achievement of project outputs. Combining this with the project manager's own self-interest, his or her focus for the duration of the project is to ensure that by the project deadline the project is complete and reported on, with any cost overruns justified and authorised. Further, the project manager is primarily responsible to

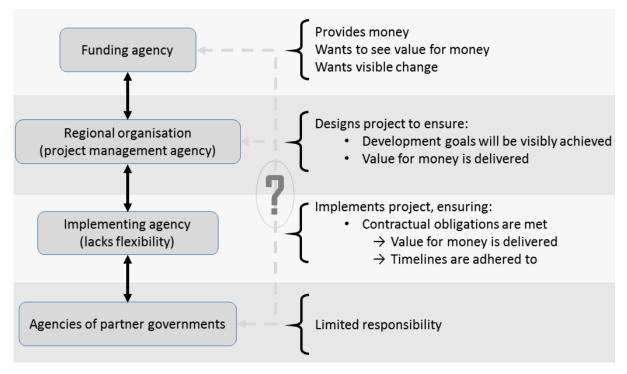


Figure 7.4: Arrangement for project-based support for CCA projects

her/his organisation, although Kerzner (2013) does note client satisfaction as a subsidiary consideration. In a development scenario, however, it can be difficult to know whether the partner government agency or the donor is the client. For these reasons, the legitimacy of the project may be called into question by the relevant government agencies, who feel alienated through having, for example, insufficient involvement and control over project design (Robinson and Gilfillan 2017, Gilfillan (Under Review)-b). Because of this, regional projects that have been nationally approved in principle can face significant obstacles during implementation because the project management and implementing organisations prioritise their control over project design and implementation over the needs of national government agencies to be in charge of affairs in their country. For ROs to improve the project-based support they provide, a re-alignment of project management tenets is needed, to better match development situations, where the organisation supplying the funds and the organisation for whom the work is being done are not necessarily the same.

The governance-based model of support is illustrated in Figure 7.5, below. Whereas project-based support is associated with funding, governance support does not have inbuilt funding mechanisms. This is particularly the case in developing regions of the world, where national governments have many pressing development concerns (e.g. Sosa-Rodriguez 2014), and constrained human and financial resources. These constraints are magnified for areas, such as adaptation and health, where data on which to act is uncertain. For a resource constrained country with many pressing development concerns, there is little incentive to

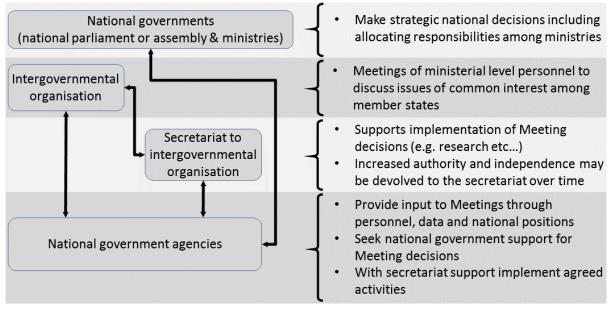


Figure 7.5: Arrangements for governance-based support for CCA projects

invest in an area of uncertainty. Because of lack of funding from the national level, the secretariat of an intergovernmental meeting may be tasked with seeking external funding in order to operationalise decisions made by the meetings. However, this may lead to increasing independence of the secretariat, as additional responsibility granted to seek funding to operationalise activities will have unintended spillover effects elsewhere (Haas 1967). As the independence of the secretariat grows, the project-style attributes of support provided will also likely grow. This process should be planned for and managed in a way that is most beneficial for member states.

Both project- and governance-based approaches have strengths as well. As noted above governance-based support prioritises building national ownership, and this leads to high levels of perceived process legitimacy, which is an important component of organisational effectiveness (Bernstein 2011, Kapiriri 2012, Riggirozzi and Grugel 2015). At the same time, the project-based models provide their own positive elements. By their nature they are focussed on achieving objectives, rather than on process elements such as relationships. Goal orientation is an important factor that leads to objective indicators as well as timelines for achieving them. Additionally, and as observed previously, project-based support is associated with the financial resources to achieve these results.

In project management theory, stakeholders such as partner government agencies, that can exert influence on the course of the project, are considered important. However, despite the theoretical importance of stakeholders, this research highlights the need for project-based support to explicitly consider the needs and desires of partner government agencies from the earliest stages of the project cycle. Ideally, this should be before the implementing agency is involved. Unfortunately, this becomes unwieldy for an RO that is supporting a project across multiple countries, and involving two or more partner government agencies in each country. However, as this research has indicated, the contexts and circumstances within countries in a region, such as Southeast Asia, differ substantially, and thus whilst a project can have regional goals, approaches must be tailored for each country. This provides the opportunity for collaboration with relevant government agencies to tailor the overall project goals to meet the specific national circumstances and requirements. The negative side of doing this, from a project management point of view, is that it adds complications, and reduces the control that the RO, as the project management agency, holds over the project.

As discussed in the literature review in Chapter 1, ROs have a variety of attributes that enable them to become involved in, and influence, national policy processes. For example, Riggirozzi (2015a) observed that ROs have been able to leverage transboundary health security issues to influence national policy and practice. ROs have also reported success fostering economic development through, for example, working with member states to achieve standardised customs and trade processes (e.g. ASEAN Secretariat 2015). Despite this, ROs face a variety of challenges to achieving regional goals, such as conflicts of interest or a lack of commonly shared values among member states (e.g. Nathan and Shaw 2016, Das 2017). The research in this thesis highlights ways that regional organisations can chart a course through some of these challenges by focussing on both processes and goals. For example, where ROs attach due importance to issues of process, such as involving relevant national government agencies in project design discussions from the outset, those agencies are more likely to view the RO as a legitimate actor. This links directly to trust and confidence between the RO and partner government agencies, because perceived legitimacy is derived from organisational actions that are seen as proper and appropriate within the relevant socially constructed system (Suchman 1995). The mutual trust and confidence leads to smoother implementation of projects because there is more effective communication, and in the case of conflicts of interest or lack of common values, the RO is able to more effectively work and negotiate with the national actors to achieve mutually agreeable outcomes.

This section discussing governance and project-based approaches highlights two main points. First, project-based support provided by regional organisations would be strengthened by adopting some of the attributes of the governance model described. Second, without a deliberate plan and strategy, the governance models of support are likely to shift towards project style support over time, as an intergovernmental organisation secretariat takes on additional responsibilities and authority. However, a deliberate integration of the two models, as through a coordinated and collaborative approach between two organisations, provides an avenue to address both of these concerns. This would be through combining the strengths of the governance approach (its legitimacy, derived through its focus on national ownership) with the strengths of the project approach (goal focussed, with resources). The details of how to achieve this integration must be managed on a case-by-case basis.

The fifth theoretical contribution of this research is built on the seemingly ubiquitous nature of coordination problems. ROs, with their direct links to government (noting that regional organisations have national governments as members), are well placed to support their member states with coordination issues. Specifically, ROs supporting CCA or adaptation and health are necessarily supporting cross-sectoral coordination at the very least, because of the cross-cutting nature of these issues. On top of the cross-sectoral coordination they support, ROs will also likely support implementation of policies developed (requiring cross-scale coordination).

However, as identified in the literature, and observed during the course of this research, supporting coordination is not just a matter of establishing an inter-ministerial council. For example, this research identified that of the two primary ingredients required for coordination to be effective (structures and incentives (Resurreccion et al. 2008, Saito 2011)), structures are routinely put in place (e.g. councils or working groups), but with the seemingly implicit assumption that the overall goals of the structure are sufficient to incentivise effective coordination. The CCTWG established by the APRF is a useful example of what happens when there is a structure but little incentivisation. When incentives are put in place, they are often focussed more on encouraging attendance (e.g. per diems paid in Cambodia for attendance at technical working group meetings (Gilfillan 2017)), than on participation and collaborative achievment of results. Results-focussed incentives should target the short and medium term goals of the coordination mechanism, and incorporate timelines, allocation of responsibilities and reporting requirements. Some of this latter style of incentivisation can be seen in the operations of the APRF, with the secretariat signalling that representatives should, for example, bring their country's environmental health country profile to the next meeting (Gilfillan (Under Review)-b).

An additional complexity is that, as argued in Chapter 6, ROs such as the ADB and the APRF have not prioritised codified and institutionalised coordination between themselves. This lack of experience in inter-organisational coordination exacerbates the difficulties for ROs supporting coordination across sectors, scales and sub-national boundaries within countries. This research highlights that ROs with geographic and mandate overlaps thus have an opportunity to put into practice inter-organisational incentivised coordination mechanisms themselves. This would build their own institutionalised experience of coordinating with

external organisations. Building and institutionalising experience in this way would support ROs to achieve the following results:

- 1) A reduction in redundancies and doubling up of RO work, through better interorganisational coordination,
- 2) A reduction in administrative burdens on resource-constrained government agencies in developing regions of the world,
- 3) A better understanding of each other's strengths, which they could build on to improve, for example, CCA and adaptation and health results,
- 4) A better understanding of inter-organisational coordination, which would enable them to provide experience-based advice and support to national governments and their agencies on how to improve coordination across sectors, scales and boundaries.

To do this will involve identifying suitable departments or initiatives in each RO that can pilot a coordinated approach. These departments or initiatives would need to have coordination goals, reporting requirements and timelines. Over time this would both build the legitimacy of ROs in supporting coordinated efforts, and provide them with a stronger basis from which to offer advice and support to the national level on ways to improve cross-sectoral, cross-scale and cross-boundary coordination.

# 7.5 Research limitations and possibilities for future research

Aside from those areas identified in each chapter, there are two key future research areas identified. Firstly, while this research considered coordination for adaptation and health across sub-national boundaries, and considered the support that ROs provide for adaptation and health across Southeast Asia, international transboundary cooperation and coordination for adaptation and health were not examined. While beyond the scope of this research, international transboundary coordination is important, and ROs are beginning to focus attention in this area, through projects such as the ADB's 'Greater Mekong Subregion Health Security Project'. This project includes consideration of climate sensitive diseases such as malaria and dengue (ADB 2017a).

Secondly, there is a disconnect between the available coordination skills within ROs (as per Chapters 5 and 6 of this thesis; see also Pittock (2010) for a discussion of coordination

problems between multi-lateral environmental agreements) and efforts to support coordination across sectors and scales within countries. Thus further research is needed, not just about the reasons for poor coordination between regional and global bodies, but also on how to address these underlying factors that inhibit coordination. Similarly, for poor coordination across sectors and scales within countries, there must be more research that addresses root causes as well as practical solutions. As per the recommendations for future research in Chapter 6, this should also include research into what characteristics of individuals make them more or less likely to promote and support coordination within and between organisations.

## 7.6 Concluding remarks

Through a focus on human health, this research has addressed the question of how the contributions of ROs to national level CCA can be improved. This is a question of governance, and relates, at the national level, to the degree of cross-sectoral, cross-scale and cross-boundary coordination. These three dimensions of coordination all impact on adaptation and health, as argued in Part B of the thesis. Because coordination issues are constraining adaptation and health in all three national case studies, and because the breadth of academic literature indicates that coordination is a major problem globally, it is an area that ROs should support. However, Parts C and D of the thesis show that ROs themselves are not immune to coordination challenges, with poor coordination between ROs with geographic and mandate overlaps in Southeast Asia and the Pacific observed to impact negatively on their support for CCA and adaptation and health. Thus this research concludes that ROs should seek to improve their inter-organisational coordination in order to both improve the support they provide in adaptation and health, as well as being better placed to advise on and support their member states to improve coordination across sectors, scales and boundaries.

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Appendix 1: Semi-structured interview guide (national level)



# Climate Change Adaptation as a Regional Issue: The South East Asian Response

### Indicative sample of questions (national)

#### Introductory questions

- 1. How long have you worked in [your organisation/department]?
- 2. What is your role in climate change adaptation at [your organisation/department]?
- 3. How long have you worked in adaptation at [your organisation/department]?
  - a. Could you please describe any earlier work you have done in the climate change field, and particularly in adaptation?

#### Main questions

- 4. Could you please describe the role that [your organisation/department] plays in climate change adaptation?
  - a. Could you please describe one or two specific examples of this?
- 5. Would you say that adaptation to climate change is built into [your country's] [health/water] sector policies?
  - a. If so, could you describe specific examples of how you see CCA built into these policies?
  - b. If not, do you think that CCA should be built in?
    - i. How do you think CCA could be most effectively and appropriately included in [your country's] [health/water] sector policies?
    - ii. Could you provide a specific example of where CCA could be included?
  - c. What sort of role do you think NGOs and other civil society actors play in determining the extent to which adaptation to climate change is built in to [health/water] sector policies, plans and strategies?
    - i. How important do you think the input of civil society is in addressing the impacts of climate change in the [health/water] sectors?
    - ii. Do you think there are particular roles that civil society actors can or should play in addressing adaptation to climate change in the [health/water] sectors?
      - 1. Could you give me one or two specific examples of these roles and how they might function?
- 6. What would you describe as the three biggest assets that [your organisation/department] has that assist in addressing the impacts of climate change in the [health/water] sector in [your country]?

- 7. What would you describe as the three biggest obstacles or constraints that [your organisation/department] face, which impede your ability to address the impacts of climate change in the [health/water] sector in [your country]?
- 8. Are there particular aspects of [your organisation/department's] work in the [health/water] sector that could be improved?
  - a. Could you describe particular ways in which your work could be improved?
  - b. Could you provide some specific examples of how this might work?
- 9. The literature on climate change adaptation describes implementation of adaptation as almost always occurring 'locally'. Could you describe for me the process in [your country] of deciding on adaptation actions?
  - a. For example, does the national government decide on particular areas or sectors where adaptation should occur? Or,
  - b. Do provincial/local governments propose adaptation activities, and wait for approval/coordination from the national government? Or,
  - c. Are provincial/local governments provided with funding for adaptation that they are able to use at their discretion?
  - d. Do provincial/local governments undertake adaptation measures autonomously?
- 10. With reference to a particular project that included an adaptation component, could you describe the interaction that [your organisation/department] has had with provincial/local government to assist in the smooth running of the project?
- 11. Could you walk me through the review mechanisms that [your organisation/department] has in place to review [health/water] sector projects that include a climate change adaptation component?
  - a. Does the review mechanism include a review schedule?
    - i. Could you describe the process of developing a review schedule for a particular project?
  - b. In reference to a particular project, could you discuss how reviews are conducted?
    - i. How many people are involved?
    - ii. What documents do they examine?
    - iii. What observations do they take?
    - iv. Who do they talk to?
  - c. What assessment criteria are used to determine whether the project is achieving what it set out to achieve or not?
  - d. Could you comment, in reference to particular project, what processes are put in place for projects where significant problems are highlighted during a
- 12. Could you describe any influence that regional organisations such as the ADB, ASEAN or APEC have on the adaptation component of the work that [your organisation/department] does?
- 13. Are there any other issues that relate to adaptation to climate change and [your organisation/department] that you think I should consider?

#### Appendix 2: Semi-structured interview guide (regional level)



## Climate Change Adaptation as a Regional Issue: The South East Asian Response

### Indicative sample of questions (regional)

#### Introductory questions

- 1. How long have you worked in [your organisation]?
- 2. What is your role in climate change adaptation at [your organisation]?
- 3. How long have you worked in adaptation at [your organisation]?
  - a. Could you please describe any earlier work you have done in the climate change field, and particularly in adaptation?

#### Main questions

- 4. Could you please describe [your organisation's] role in adaptation in South East Asia
  - a. Could you please describe one or two specific examples of this, noting that I am particularly interested in the health sector and the water management sector?
- 5. Could you please outline the three biggest strengths of [your organisation] in reference to its role in addressing climate change adaptation, again, particularly strengths in the health and/or water sectors?
- 6. What would you say are the three biggest obstacles that [your organisation] faces in addressing adaptation to climate change regionally, particularly those in the health and/or water sectors?
- 7. What would you say are the main areas of the adaptation work in health and water that [your organisation] does that could be improved?
  - a. In what specific ways could these be improved?
  - b. Could you provide some specific examples of how this might work?
- 8. My impression is that regional organisations such as [your organisation] deal with national governments, even though projects that [your organisation] has initiated or funded would generally be implemented at a lower level such as provincial governments. Would you agree with this assessment?
  - a. Does operating across the different levels of government provide opportunities that [your organisation] is able to capitalise on?
  - b. Also, are there particular coordination challenges involved in dealing with different levels of government?
- 9. Could you describe the interactions that [your organisation] has with national governments in relation to adaptation to climate change?

- a. Could you pick a particular health or water sector project that has been initiated or funded by [your organisation] and describe some of the negotiations that have taken place with national government to assist with the smooth running of the project?
- b. Particularly with the governments of:
  - i. Indonesia
  - ii. The Philippines
  - iii. Vietnam
  - iv. Cambodia
- 10. Could you talk me through the review mechanisms that [your organisation] has in place to assess and evaluate the progress of adaptation projects that [your organisation] has initiated or funded in the health and/or water sectors?
  - a. Does [your organisation] include review schedules in adaptation project planning, and if so, could you please describe the process of developing a review schedule?
  - b. In reference to a particular project, could you discuss how the review takes place?
    - i. How many people are involved?
    - ii. What documents do they examine?
    - iii. What observations do they take?
    - iv. Who do they talk to?
  - c. What assessment criteria are used to determine whether the project is achieving what it set out to achieve or not?
  - d. Could you comment, in reference to particular project, what processes are put in place for projects where significant problems are highlighted during a review?
- 11. Does [your organisation] engage with or seek to influence the national level policies and strategies that address adaptation to climate change?
  - a. With reference to particular examples, could you describe any processes that [your organisation] uses to encourage national governments to build climate change adaptation considerations into their national public health and water management policies, strategies and plans?
- 12. Could you describe any influence that you think global institutions such as the UNFCCC and World Bank have on the adaptation work of [your organisation] in the health and water sectors?
- 13. Could you describe any influence that you think NGOs and other civil society actors may have on the adaptation work of [your organisation] in the health and water sectors?
- 14. Are there any other issues that relate to adaptation to climate change and [your organisation] that you think I should consider?

Appendix 3: Attribution Statements for Chapters 4 and 5 Attribution Statement for Chapter 4

## **AUTHORSHIP ATTRIBUTION STATEMENT**

Gilfillan, Daniel, Nguyen, Thi Thu and Pham, Thu Ha "Coordination and Health Sector Adaptation to Climate Change in the Mekong Delta" *Ecology and Society* [forthcoming]

Status at 06 July 2017: Accepted

Attribution statement: July 06, 2017

The paper, "Coordination and Health Sector Adaptation to Climate Change in the Mekong Delta", which has been accepted for publication by the open access journal, Ecology and Society, explores governance coordination issues in the Mekong Delta, and their impact on health sector adaptation to climate change. It was co-authored with Nguyen Thi Thu, a researcher at the Biodiversity Centre, Vietnam National University of Forestry, and Pham Thu Ha, a researcher at the School of Governance, University of Economics Ho Chi Minh City. The three authors contributed to the paper's development as presented in the following table:

	CONTRIBUTION AREAS	CONTRIBUTIONS			
	CONTRIBOTION AREAS	Daniel Gilfillan	Nguyen Thi Thu	Pham Thu Ha	
1	Project design	100%	0%	0%	
2	Data Collection (Interviews and policy documents)	75%	10%	15%	
3	Literature Review	33%	33%	33%	
4	Data Analysis	70%	15%	15%	
5	Data interpretation	80%	10%	10%	
6	Drafting sections	50%	25%	25%	
7	Reviewing, editing and finalising drafted sections	95%	3%	2%	
8	Designing figures and tables	100%	0%	0%	
9	Proofreading	90%	5%	5%	
10	Revising the manuscript following receipt of reviewers comments	65%	20%	15%	
ov	ERALL CONTRIBUTION OF EACH AUTHOR:	70%	15%	15%	

The agreed attribution for the paper is:

Daniel Gilfillan (70%) Nguyen Thi Thu (15%) Pham Thu Ha (15%)

The paper is published in an open access journal, and both co-authors (Nguyen Thi Thu and Pham Thu Ha) have given permission to include the published material in this thesis.

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Daniel Gilfillan July 12, 2017

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Nguyen Thi Thu July 12, 2017 Pham Thu Ha July 12, 2017

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## Attribution Statement for Chapter 5

## AUTHORSHIP ATTRIBUTION STATEMENT

Robinson, S. and Gilfillan, D., 2016. Regional organisations and climate change adaptation in small island developing states, Regional Environmental Change, Online first: 1-16. Available at: http://dx.doi.org/10.1007/s10113-016-0991-6 (accessed June 18, 2016).

Status: Published in 2016 in Regional Environmental Change (Online first).

Attribution statement: June 18, 2016

The paper, "Regional organisations and climate change adaptation in small island developing states", which forms part of a Special Issue on Small Island Developing States, seeks to assess the effectiveness of regional organisations coordinating regional adaptation responses to climate change across small island developing states in the Caribbean and Pacific. It was co-authored with Stacy-ann Robinson, a PhD Scholar at the Fenner School of Environment and Society, The Australian National University. The two authors contributed equally to the paper, by:

- Designing the study
- Conducting the literature review
- 3. Developing the Framework for Assessing Regional Organisations Coordinating Climate Change Adaptation (FAROCCCA)
- 4. Collecting the data
- 5. Analysing the data
- 6. Interpreting the data
- 7. Drafting sections
- 8. Reviewing, editing and finalising drafted sections
- 9. Designing figures and tables
- 10. Collating the appendices
- 11. Proofreading
- 12. Revising the manuscript, following the receipt of reviewers' comments

The agreed attribution is 50% (Robinson) and 50% (Gilfillan).

Permission to include the published material in this thesis was granted by the Journal and by the coauthor, Stacy-ann Robinson.

SMRobinson Stacy-ann Robinson

June 18, 2016

Daniel Gilfillan

June 18, 2016

## Appendix 4: Appendices to Chapter 5

Appendix 4.1: Theoretical Framework (Chapter 5)

There are many theoretical approaches that could be taken to this study, including regionalism and neo-regionalism. These were excluded primarily because of their: (1) emphasis on studying how regions are formed and how they function, and (2) functional definition of regions based on economic, environmental and cultural factors (see Väyrynen 2003).

In contrast, this study focusses on geographically-defined regions and how the regional organisations within them function, particularly with respect to climate change adaptation. As such, the research is primarily shaped by modern organisation theory with elements of neo-functionalism. Modern organisation theory recognises that individuals, processes and systems work together to achieve desired objectives (Hicks and Gullet 1975); it interprets organisations as adaptive, descriptive and dynamic processes of interaction with many dimensions and motivations (Asopa and Beye 1997). Aspects of the systems, contingency and socio-technical approaches to modern organisation theory are incorporated in this research. The systems approach emphasises the organisational linking mechanisms and processes (e.g. decision-making and communication), components (e.g. individuals and physical environment), as well as organisational goals (Asopa and Beye 1997). The contingency approach encourages consideration of the political, socio-economic, cultural, legal and technical environment in which the organisation operates as well as performance optimisation through appropriate organisational relationships (Asopa and Beye 1997). The socio-technical approach examines the techniques and knowledge that support staff to produce valuable goods and services for wider use (Asopa and Beye 1997). Neo-functionalism recognises the independent role of organisations (Schmitter 2003). Non-state actors, such as the secretariats of regional organisations and individuals, work together at the regional level to achieve aggregated interests (see e.g. Ludlow 2006). From this perspective, Member States establish a regional organisation, set its initial mandate and play a role in determining its operational agenda, a role which generally diminishes over time as authority is gradually devolved to the organisation itself (Schmitter 2003). These theoretical underpinnings are strengths of this paper. Organisation theory offers an explicit recognition of the complexities that result from having multiple organisations, processes, individuals and operating environments with differing goals and motivations working towards desired outcomes. Its neofunctional elements allow the authors to take an integrated view of each organisation. Both theories shape the authors' ontological view that transformational improvement of regional organisations and systems is possible, making an academic inquiry into regional approaches to climate change adaptation a worthwhile endeavour.

Appendix 4.2: FAROCCCA components, sub-components and indicators

LEGEND
Perceptual indicator or indicator not rated in this paper

SUB-COMPONENT	INDICATOR	EXAMPLE OF SUPPORT IN THE LITERATURE
	1. Input Effectiveness	
1. Goals	<ol> <li>Climate change adaptation was an initial goal of the organisation.</li> </ol>	Biermann and Bauer (2004);
	2. Climate change adaptation is a current goal of the organisation.	Quinn and Rohrbaugh (1983);
	3. The current strategic plan contains specific climate change adaptation objectives.	Sowa et al. (2004); Young (2011)
	4. There is no other regional organisation with similar climate change adaptation goals.	
2. Governance	<ol> <li>The Board provides visionary leadership and strategic direction.</li> </ol>	Oberlack and Neumärker
and leadership	2. The organisation evaluates organisational performance at least annually.	(2013); Renz and Herman
	3. Executive management (can also include members of the Board/Governing Body)	(2002); Sowa et al. (2004);
	decision-making is done by consensus or majority vote.	Taylor et al. (2014); World
	4. Executive management staff (can also include members of the Board/Governing	Economic Forum (2014); Yukl
	Body) are qualified and/or equipped to achieve the goals of the organisation.	(2008)
	<ol><li>Executive management staff disclose potential conflicts of interest.</li></ol>	
	6. The organisation attracts, retains and develops talent.	
	7. Leaders create a dynamic organisational culture, making the organisation a	
	desirable place to work.	
<ol><li>Resources</li></ol>	1. There are staff members exclusively dedicated to climate change adaptation.	Abd Rahman et al. (2013);
	2. Staff are qualified and have experience in climate change adaptation.	Biermann and Bauer (2004);
	3. Staff are qualified and have experience in project/program management.	Daft (2012); McDavid et al.
	4. Staff participate in ongoing training programs.	(2013); Oberlack and
	5. Staff performance is appraised (formally or informally) at least annually.	Neumärker (2013); Sowa et al.
	6. The organisation has untied funding.	(2004); Wolfe and Putler (2002)

			1
		7. The organisation has funds exclusively dedicated to climate change adaptation.	
		8. External funding to the organisation has increased over the past 5 years.	
		9. The organisation has multiple funding sources.	
		10. The organisation has financial reserves.	
		11. The organisation has sufficient technological resources (e.g. intellectual property	
		rights, patents, copyright, software licences etc.) to carry out its climate change	
		adaptation mandate.	
4.	Structure,	1. There is a low degree of hierarchy (i.e. few hierarchical levels).	Biermann and Bauer (2004);
	systems and	2. The organisation has a human resource management system that supports the	Miller and Salkind (2002); Quinn
	processes	shaping of organisational culture and staff recruitment, training, development and	and Rohrbaugh (1983); Sowa et
		retention.	al. (2004)
		3. There is a financial management system that meets International Financial	
		Reporting Standards (IFRS) or its equivalent.	
		4. The organisation applies risk management principles in its decision-making	
		processes.	
		5. The organisation has a centralised, user-friendly internal data management system.	
		6. The organisation has a user-friendly project/program management system (e.g. that	
		supports staff to identify, schedule and track resources etc.).	
		7. There are mechanisms that support vertical and horizontal communication.	
		8. There are internal dispute resolution protocols.	
5.	Research and	1. The organisation has plans and policies that support research.	Biermann and Bauer (2004);
	collaboration	2. There are organisational funds allocated for research.	CCCCC (2012); CHFI (2014);
	capacity	3. The organisation has equipment, expertise and/or resources (e.g. access to journal	Holden et al. (2012); Howes et
		articles etc.) for research.	al. (2015)
		4. The organisation's current strategic plan (or a similar document) outlines plans for	
		collaboration with multiple stakeholders on adaptation-related initiatives.	
		2. Project/Program Effectiveness	
1.	Needs and	1. The project documents contain evidence that the project/program fills an existing	McDavid et al. (2013); Underdal
	goals	need with relation to climate change adaptation.	(2010); Weiss (2005)

			, ,
	2. The project/program's adaptation	·	
		program focusses on "larger, more profound	
	system changes" and requires a "p	aradigm shift" in the way it is framed and	
	implemented).		
	3. Climate change adaptation is a goa	I of the project/program.	
	4. The project/program's goals reflect	t the long-range impacts of climate change.	
	5. The project/program's objectives r	elating to climate change adaptation are specific,	
	measurable, achievable, realistic a	nd time-bound (SMART).	
	6. Member Countries were involved i	n developing the climate change adaptation	
	components of the project/progra	m.	
2. Scope	1. The project/program addresses mu	ultiple climate or climate-induced vulnerabilities	Robinson (2015); Weiss (2005)
	(e.g. vulnerability to sea-level rise,	increased sea surface and air temperature,	
	changing rainfall patterns etc.).		
	2. The project/program addresses mu	ultiple non-climate-induced vulnerabilities (e.g.	
	poverty, deforestation etc.).		
3. Logic, design	1. The logic/design of the project/pro	gram's climate change adaptation components is	Biermann and Bauer (2004);
and adequacy	evidence-based, in the context of S	SIDS.	Galaz et al. (2008); McDavid et
	2. The project documents contain evi	dence that the logic/design of the	al. (2013)
	project/program's climate change	adaptation components is an effective means to	
	achieve its objectives.		
4. Resources	1. Staff members are assigned exclus	ively to the project/program.	Daft (2012); McDavid et al.
	2. The project/program team include	s staff members with qualifications and	(2013); Wolfe and Putler (2002)
	experience in climate change adap	tation.	
	3. The project/program team include	s staff members with qualifications and	
	experience in project/program ma	nagement.	
	4. The project documents contain evi	dence that there are sufficient staff members to	
	achieve the project/program object	tives.	
	5. The project documents contain evi	dence that there is sufficient funding for the	
	project/program's climate change	adaptation components.	

5.		1.	1 , 11 0 1	McDavid et al. (2013)
	efficiency		for money (cost vs. outputs).	
6.	Implementatio	1.	er e prospero, prospero e e e e e e e e e e e e e e e e e e	McDavid et al. (2013)
	n		proposed.	
7.	Monitoring	1.	The project/program is internally monitored and evaluated.	McDavid et al. (2013); Yukl
	and evaluation	2.	The project/program is externally monitored and evaluated.	(2008)
8.	Sustainability	1.	There are sustained outputs from the project/program.	CCCCC (2012); PIF Secretariat
				(2014)
			3. Output Effectiveness	
1.	Goal	1.	There is evidence in the most recent annual report or evaluation that the climate	Button <i>et al.</i> (1996); Etzioni
	attainment		change adaptation-related objectives of the organisation are being achieved.	(1960); Etzioni (1964); Sowa et
				al. (2004)
2.	Research and	1.	The organisation produces and/or publishes research that is relevant to climate	CCCCC (2012); PIF Secretariat
	knowledge		change adaptation at least annually.	(2014); also based on Interviews
	management	2.	The organisation makes climate change adaptation-relevant research publicly	(August 2014-August 2015)
			available.	
3.	Collaboration	1.	There is evidence that the organisation collaborates with multiple stakeholders to	CCCCC (2012); Connolly et al.
	and advocacy		undertake climate change adaptation-related activities.	(1980) PIF Secretariat (2014);
		2.	The organisation advocates for political, financial and/or other climate change	also based on Interviews
			support for its Member Countries in various fora at different scales.	(August 2014-August 2015)
4.	Education and	1.	The organisation undertakes climate change adaptation stakeholder and/or public	CCCCC (2012); also based on
	training		awareness activities.	Interviews (August 2014-August
	_	2.	The organisation develops and/or implements training programs for stakeholders in	2015)
			issues related to climate change adaptation.	
5.	Specialised	1.		CCCCC (2012); also based on
	advisory		Member Countries and/or other stakeholders.	Interviews (August 2014-August
	services			2015)
			4. Outcome Effectiveness	<u> </u>
	-			-

Appendix 4.3: Application of FAROCCCA to CCCCC

	RATING SYSTEM				
×	No				
<b>♦</b>	To some extent				
$\overline{\checkmark}$	Yes				
(NE)	No evidence				
	Perceptual indicator or indicator not rated in this				
	paper				

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		Input Effectiveness	
1. Goals	Climate change     adaptation was     an initial goal of     the organisation.	The Agreement Establishing The Caribbean Community Climate Change Centre (CCCCC) (2002) states that, "Affirming that responses to climate change should be co-ordinated with social and economic development in an integrated manner with a view to avoiding adverse impact on the latter, taking fully into account the legitimate priority needs of developing countries for the achievement of sustained economic growth and the eradication of poverty" (forward); "The objectives of the Centre shall be: (a) protection of the climate system of Members of the Centre for the benefit of present and future generations of their peoples" (Article 4a); "In order to achieve its objectives set out in Article 4, the Centre shall perform the following functions: (f) co-ordinating (and initiating) the development of regional research programmes, including adaptation of global climate and impact modelling efforts and specialised training focussed on effective adaptation to global climate change" (Article 5f); The Agreement has 41 references to climate change; 7 references to adaptation (CARICOM Secretariat 2011a, online).	ૅ
		The CCCCC's Mission Statement is: "Through its role as a Centre of Excellence, the Centre will support the people of the Caribbean as they address the impact of climate variability	

SUB-COMPONENT		INDICATOR	EVIDENCE	RATING
			and change on all aspects of economic development through the provision of timely	
			forecasts and analyses of potentially hazardous impacts of both natural and man-induced	
			climatic changes on the environment, and the development of special programmes which	
			create opportunities for sustainable development" (CCCCC 2015f, online).	
	3.	Climate change	The 5 strategic elements of the CCCCC/CARICOM Regional Framework (valid 2011-2021)	
		adaptation is a	include: "(a) Mainstreaming climate change adaptation strategies into the sustainable	
		current goal of	development agendas of CARICOM states"; "(b) Promoting the implementation of specific	
		the organisation.	adaptation measures to address key vulnerabilities in the region"; "(d) Encouraging action to	
			reduce the vulnerability of natural and human systems in CARICOM countries to the impacts	
			of a changing climate" (CCCCC 2012, p. 18).	
	4.	The current	The objective of the Regional Implementation Plan, part of the CCCCC/CARICOM Regional	♦
		strategic plan	Framework, is "to build resilience to a changing climate and create low carbon economies"	
		contains specific	by "delivering actions in the following areas: (1) institutional and governance building	
		climate change	blocks, (2) cross-cutting challenges, and (3) technical and physical impacts" (CCCCC 2012, p.	
		adaptation	50). The Plan has 8 key milestones, including (1) research component completed, (3)	
		objectives.	Regional Coordinating Mechanism established, (8) policy review completed. All milestones	
			have target completion months and years (CCCCC 2012, p. 116).	
			Goals associated with relevant Strategic Elements:	
			2.1: Promote the adoption of measures and disseminate information that would make water	
			supply systems resilient to climate-induced damage	
			2.2: Promote the implementation of measures to reduce climate impacts on coastal and	
			marine infrastructure	
			2.3: Promote the adoption of measures and dissemination of information that would adapt	
			tourism activities to climate impacts	

APPENDICES
[A-14]

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		2.4: Promote sound conservation practices in coastal and marine ecosystems to shelter	
		these resources from climate-induced damage	
		2.5: Promote the adoption of sound practices and measures to prevent and/or reduce	
		climate-induced health impacts in the community.	
	5. There is no other	The CARICOM website lists 34 regional organisations and institutions in the Caribbean. One	V
	regional	of these institutions has climate change in its name—the 'Caribbean Planning for Adaptation	
	organisation with	to Global Climate Change' (CPACC) (CARICOM Secretariat 2011d). However, elsewhere on	
	similar climate	the website, CPACC is identified as a project (CARICOM Secretariat 2011c).	
	change		
	adaptation goals.	See also (CCCCC 2012, p. 100).	
		Two organisations have 'environment' in their name—Caribbean Environment Health	
		Institute (CEHI) (now CARPHA) and Caribbean Environmental Reporters Network (CERN).	
		CEHI/CARPHA is a Technical Institute of CARICOM. Its mission statement does not mention	
		climate change—"CEHI provides technical and advisory services to Member States in all	
		areas of environmental management including:	
		- Water Resources Management, Sustainable Land Management and Integrated	
		Watershed and Coastal Areas Management	
		- Waste Management: Solid, liquid, hazardous, biomedical and electronic waste	
		- Indoor Air Quality, Chemical Safety and Occupational Health and Safety	
		- Sustainable Consumption and Production, Eco-Efficiency and Renewable Energy	
		- Environmental and Social Impact Assessments	
		- Environmental Management Training	
		- Public Awareness and Outreach" (CEHI n.d., online).	

APPENDICES
[A-15]

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		"CERN is a group of journalists working closely with scientists to accurately translate their	
		data to provide responsible coverage of development and environmental issues. CERN	
		produces a radio magazine programme which is distributed by CANA Radio and broadcast	
		throughout the Caribbean region. The organisation works closely with The Caribbean	
		Institute of Mass Communication (CARIMAC) - Mona Campus of the University of the West	
		Indies and Panos Washington to provide training and the Caribbean News Agency (CANA)	
		wire service which carries CERN's Greenwire. CERN's pool of reporters can be found at most	
		major environmental and development conferences around the world" (ELDIS 2015, online).	
		Based on names, six other organisations could potentially have climate change adaptation	
		objectives—the Association of Caribbean States (ACS), Caribbean Development Bank (CDB),	
		Caribbean Disaster Emergency Management Agency (CDEMA) (formerly CDERA), Caribbean	
		Institute of Meteorology and Hydrology (CIMH), Organisation of Eastern Caribbean States	
		(OECS) and University of the West Indies (UWI). Three missions of three are given below:	
		CDEMA "is a regional inter-governmental agency for disaster management" in CARICOM. "It	
		[CDERA] transitioned to CDEMA in 2009 to fully embrace the principles and practice of	
		Comprehensive Disaster Management (CDM). CDM is an integrated and proactive approach	
		to disaster management and seeks to reduce the risk and loss associated with natural and	
		technological hazards and the effects of climate change to enhance regional sustainable	
		development" (CDEMA n.db, online). CDEMA "received funding support from the Austrian	
		Development Agency (ADA) to implement the Mainstreaming Climate Change into Disaster	
		Risk Management for the Caribbean Region (CCDM) Project" (CDEMA n.da, online). It	
		names CCCCC as a key partner in this project (CDEMA n.da). 'Climate Change, Disaster Risk	
		Reduction and Environment Sub-Committee' is a sub-committee of CDEMA's Technical	
		Advisory Committee (TAC) (CDEMA n.db).	

APPENDICES [A-16]

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		"The Caribbean Institute for Meteorology and Hydrology (CIMH) is a training and research	
		organisation formed by the amalgamation of the Caribbean Meteorological Institute (CMI)	
		and Caribbean Operational Hydrological Institute (COHI)". "The role and mission of the CIMH	
		is to improve the meteorological and hydrological services and to assist in promoting the	
		awareness of the benefits of these services for the economic well-being of the CMO	
		countries. This is achieved through training, research and investigations, and the provision	
		of specialised services and advice" (CIMH 2015, online).	
		UWI at Mona (Jamaica) has a Climate Studies Group (CSGM). It "was formed within the	
		Physics Department at the University of the West Indies in 1994 under the initiative of the	
		Honourable Professor A. Anthony Chen, O.M. The CSGM comprises faculty members,	
		consultants, technical staff and postgraduate students - all working together to increasingly	
		understand the workings of local, regional and global climate".	
		"The mission of the CSGM is as follows:	
		To investigate and understand the mechanisms responsible for	
		<ul> <li>the mean climate and</li> </ul>	
		<ul> <li>extremes in climate in both Jamaica and the wider Caribbean</li> </ul>	
		To use this understanding to predict climate on a seasonal and annual basis	
		To promote awareness of global warming	
		To determine how anthropogenic climate change will manifest itself in the	
		Caribbean region	
		To investigate the potential for exploiting renewable energy resources	
		To investigate and promote the advantageous uses of climate prediction in socio-	
		economic sectors" (UWI 2015, online).	

APPENDICES
[A-17]

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		CSGM is also engaged in CCA projects e.g. PPCR (see Williams-Raynor 2015).	
		UWI at St Augustine (Trinidad and Tobago) has "an Office of Research Development and	
		Knowledge Transfer (ORDKT) that supports all research and knowledge transfer activities.	
		ORDKT links UWI experts to national and international corporations, multinational	
		organizations, governments, NGOs and funding agencies. Part of its service includes:	
		research management and research capacity development activities; planning and	
		implementation of strategies; policy making; seek funding for project management and	
		execution; development and management of key stakeholder relationships for research	
		collaboration. Recent research funded projects: incorporation of RE and energy efficiency	
		into the academic programmes; Caribbean climate change adaptation and mitigation	
		scenarios; geoinformatics technology for climate change monitoring, mitigation and	
		adaptation strategies; climate change adaptation strategies for water resources and human	
		livelihoods" (emphasis added) (UNEP-REGATTA 2015, online).	
		*Key role of CCCCC is coordinating and centralising efforts; other organisations doing	
		aspects of the CCCCC's work*	
2. Governanc	8. The Board		
e and	provides		
leadership	visionary		
•	leadership and		
	strategic		
	direction.		
	9. The organisatio	The Centre "is strengthening its capacity by establishing a Monitoring and Evaluation Unit to	<b>♦</b>
	evaluates	better prepare it to function as an implementing agency with the requisite technical capacity	
	organisational	to institute projects on par with international organizations operating in the region. The new	
		Unit will also advance the Centre's capacity to advise and help governments develop,	

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
	performance at	monitor and evaluate programmes in accordance with its mandate as the region's key node	
	least annually.	of information and action on climate change" (CCCCC, 2015a, online).	
		*This Unit has not yet been established but could do internal M&E*	
	10. Executive	Article 10(5) of the Establishment Agreement states that: "The Board shall take decisions by	V
	management	a qualified majority of three-quarters of the votes of its membership" (CARICOM Secretariat	
	(can also include	2011a, online). Article 10(1) of the Agreement states that: "The Board of Governors	
	members of the	(hereinafter called "the Board" shall consist of representatives of Members and institutions,	
	Board/Governing	both public and private, set out in the Annex to this Agreement" (CARICOM Secretariat	
	Body) decision-	2011a, online).	
	making is done by		
	consensus or		
	majority vote.		
	11. Executive	CCCCC is "overseen by a Board of Directors [also called 'Board of Governors'] selected by the	V
	management	Council of Ministers designated for this purpose by the CARICOM Heads of Government"	
	staff (can also	(CCCCC 2015i, online).	
	include members		
	of the	Dr Leonard A. Nurse chairs the current 11 member Board, representing the Government of	
	Board/Governing	Barbados (CCCCC 2015i). Dr Nurse is an IPCC WGII scientist and 2007 Nobel Prize Laureate.	
	Body) are	He is "a member of the CARICOM Task Force on climate change, established by regional	
	qualified and/or	Heads of Government in 2009" (UPRM n.d., p. 1). "Dr Nurse is regarded as a leading	
	equipped to	practitioner in coastal resources management regionally and internationally, and has	
	achieve the goals	undertaken numerous consultancies in this field for regional governments, the private	
	of the	sector and international organizations including UNEP, UNDP, IDB, and the World Bank. He	
	organisation.	has been a researcher with the United Nations Intergovernmental Panel on Climate Change	
		(IPCC) since 1990, and has written and published widely on the impact of climate change on	
		small island states. He has also served as Vice-Chair of the Intergovernmental	

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		Oceanographic Commission Sub-Commission for the Caribbean and Adjacent Regions	
		(IOCARIBE), and from 2002-2004 was a Member of the Scientific and Technical Advisory	
		Panel of the Global Environmental Facility of the World Bank" (UPRM n.d., p. 1).	
		Dr Kenrick R. Leslie is the Executive Director (CCCCC 2015i). "Dr Leslie has considerable	
		experience in the fields of physics and meteorology. In December 2003 he was charged with	
		the responsibility of transforming the Centre from a concept into a viable operational	
		Institution. The Centre became fully operational in January 2005 with recognition as a	
		regional Executing Agency on climate Change-related projects by the World Bank, various	
		UN agencies and the UK Department for International Development (DIFD). Prior to joining	
		the Climate Change Centre he was a Senior Principal Scientist in the Applied Physics	
		Laboratories of AlliedSignal now Honeywell Corporation in Morristown, New Jersey in the	
		United States. He has also contributed much to the development of meteorology and	
		climatology in the Caribbean. He has worked as a meteorologist in the meteorological	
		services of Trinidad and Tobago, Jamaica and the Bahamas. Dr. Leslie established the	
		National Meteorological Service of Belize and served as its first Director from 1972 to 1981.	
		In addition he served on the Board of Governors of the Caribbean Institute of Meteorology	
		and Hydrology from 1972 until 1981. During this same period he also served as Rappoteur to	
		the World Meteorological Organization, Regional Association IV comprising North America,	
		Mexico, Central America and the Caribbean" (United Nations 2006, online).	
		"In recognition of his exemplary public service he was awarded the Belize Order of	
		Distinction (BOD) by the government of Belize in 2009 which is country s highest award. In	
		2008 he was appointed by Queen Elizabeth the Second to be a Commander of the British	
		Empire (CBE) and in 1974 a Member of the British Empire (MBE). At AlliedSignal he received	
		numerous awards including the Corporation's highest award in 1991 for Technical	

APPENDICES [A-20]

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		Achievement in the development of the first solid state blue laser for underwater to space	
		communications" (Cross Strait Interflow Prospect Foundation 2010, p. 27).	
	12. Executive		
	management		
	staff disclose		
	potential conflicts		
	of interest.		
	13. The organisation	Dr Ulric Trotz is the current Deputy Director and Science Advisor (CCCCC 2015i). "Dr Trotz is	<b>♦</b>
	attracts, retains	a science advisor with the Caribbean Community Climate Change Centre in Belize. He has a	
	and develops	PhD in organic chemistry and comes to us with a wide and varied experience and expertise	
	talent.	in the fields of science, government service, and academe. He's published and lectured	
		widely on climate change issues, and in his capacity as review editor for the chapter on	
		Small Island Developing States in the Fourth Assessment Report of the IPCC, he was a	
		member of a group of scientists that was awarded the Nobel Prize in 2008. He's been	
		recognized for his public service in his native country of Guyana, and was recently inducted	
		as an honorary distinguished fellow at the University of the West Indies in Barbados"	
		(Columbia University 2010, p. 10). In November 2005 (the Centre officially opened in August	
		2005), Dr Trotz was already with the 5Cs (see Government of Belize 2005, p. xxiv). In	
		February 2006, he was the Programme Manager of the MACC Project (CARICOM and UNDP	
		2006).	
		Mr Carlos Fuller is the current International and Regional Liaison Officer (CCCCC 2015i) and	
		joined the CCCCC at some point between 2006 and 2008. In November 2005, Mr Fuller was	
		the National Focal Point for Belize for the UNFCCC. He was also the Chief Meteorologist at	
		the National Meteorological Service in the Ministry of Natural Resources, Local Government	
		and the Environment (MNRLGE), Belize (see Government of Belize 2005, p. xxiv). In February	
		2006, Mr Fuller was still with the MNRLGE (CARICOM and UNDP 2006). In June 2008, he	

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		participated in the Fourth Meeting of the GCOS Cooperation Board as the Deputy Director of the CCCCC (WMO 2008).	
		In 2014, Ms Sharon Olive Lindo was a Policy Officer (UNFCCC Secretariat 2014). In November 2005, Ms Lindo was the Sustainable Development Officer in the MNRLGE, Belize (see Government of Belize 2005, p. xxiv).	
	14. Leaders create a		
	dynamic		
	organisational		
	culture, making		
	the organisation		
	a desirable place		
	to work.		
3. Resources	12. There are staff	?	(NE)
	members		
	exclusively		
	dedicated to		
	climate change		
	adaptation.		
	Staff are qualified	Mr Carlos Fuller, the Centre's current International and Regional Liaison Officer, is "a long-	$\overline{\checkmark}$
	and have	standing Caribbean negotiator" (CCCCC 2014, online). In a 2014 interview, Mr Fuller said,	
	experience in	"Having been involved in the climate change negotiation process since its inception, I look	
	climate change	back at the past 20 years with mixed emotions. I have witnessed first-hand the assimilation	
	adaptation.	of vague ideas on the elements of a climate change agreement which were crafted into a	
		Convention with perhaps too rigid elements that have hindered the actions required to	
		reduce the emissions of greenhouse gases instead of facilitating a process which would have	
		produced the change in productive and consumption patterns to address the causes of	

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		climate change. Nevertheless, a series of decisions including the development and adoption	
		of the Kyoto Protocol provided the impetus for a small group of countries to reduce their	
		emissions and have raised the awareness among a significant segment of the population	
		that the world must take action to cope with a changing climate" (CCCCC 2014, online). He	
		served as a Regional Technical Committee collaborator for the 2009 ECLAC project 'The	
		Economics of Climate Change in Central America', funded by the UK Department for	
		International Development (DFID) (ECLAC 2010). The project aimed to "alert decision	
		makers and key actors in the region about the urgent need to address the challenge of	
		climate change and promotes dialogue regarding options for national and regional policies	
		and actions" and also to "conduct an assessment of the economic impact of climate change	
		in Central America under various development and emissions scenarios, considering the	
		costs and benefits of vulnerability reduction and adaptation and a transition toward a	
		sustainable and low-carbon economy relative to one of inaction ("business as usual")"	
		(ECLAC 2010, p. 19). Mr Fuller's name appears on the provisional list of participants for	
		UNFCCC meetings e.g. the 2015 Ad Hoc Working Group on the Durban Platform for	
		Enhanced Action in Bonn (UNFCCC Secretariat 2015).	
		Dr Mark Bynoe has a PhD in Economics (DPMC n.d.). In 2014, he was Head of the Project	
		Development and Management Unit/Senior Resource Economist, Project Development and	
		Management Unit (PDMU)/Economic and Social Impact Unit (ESIU) (UNFCCC Secretariat	
		2014). From August 2008 to July 2010, he was the Environmental/Resource Advisor to the	
		5Cs (DPMC n.d.), per the Commonwealth Fund for Technical Co-operation (CFTC) (pers	
		comm, 2015). In this capacity, he: "(i) support[ed] work at regional and national levels on	
		costing climate change impacts on the water, tourism and agriculture sectors; (ii)	
		develop[ed] and train[ed] regional personnel on costing adaptation options in these sectors	
		and using these results to inform sectoral adaptation policy and implementation plans; (iii)	
		advice[d] [sic] the organizations on the use of information derived from assessments for	

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		decision making in climate change adaptation; (iv) mentor[ed] and teach [taught] staff on	
		approaches to cost benefit analyses of adaptation options including the costs of delayed	
		action; (v) prepare[d] training material on the methods utilized in carrying out costing of	
		impacts and adaptation options to include methods for assessment of environmental	
		services; (vi) liaise[d] closely with national climate change focal points training institutions	
		within the region and other regional institutions conducting similar activities" (DPMC n.d., p.	
		2). Between May 2008 and February 2009, he was Project Coordinator, Economist and Policy	
		Analyst for the development of a National Agricultural Sector Strategy and Action Plan for	
		Guyana to Adapt to Climate Change (DPMC n.d.). In April 2000, he "prepared, in	
		collaboration with one other professional, a Coastal Vulnerability Study for Guyana due to	
		Climate Change for the Guyana Environmental Protection Agency and the Organisation of	
		American States" (DPMC n.d., p. 6).	
	13. Staff are qualified	In 2014, Dr Mark Bynoe was Head of the Project Development and Management Unit/Senior	Ø
	and have	Resource Economist, Project Development and Management Unit (PDMU)/Economic and	
	experience in	Social Impact Unit (ESIU) (UNFCCC Secretariat 2014). In 2007, while Managing Director of	
	project/program	Development Policy and Management Consultants, he gained a Certificate in Program	
	management.	Monitoring and Evaluation from St. Georges University in Grenada (DPMC n.d.). He has "a	
		wealth of experience in project and program planning" (DPMC n.d., p. 1). Between 1994 and	
		2009, he managed, coordinated and/or implemented 45+ projects and programs e.g. coastal	
		vulnerability studies, livelihoods assessments and feasibility studies (DPMC n.d.).	
		In 2014, Mr Keith Egbert Nichols was Project Development Specialist in the Project	
		Development and Management Unit (PDMU) (UNFCCC Secretariat 2014). In 1998, Mr	
		Nichols worked for the OECS on matters relating to the Cartagena Protocol , SPAW etc. (CEP	
		(UNEP) 1998). In 2012, he was Programme Officer in the OECS Environment and Sustainable	
		Development Unit (OECS 2012). This Unit was responsible for the implementation of the	
		OPAAL Project aimed "to contribute to the conservation of biodiversity of global importance	

APPENDICES
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SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		in the participating countries of the OECS by removing barriers and minimizing the	
		challenges facing the effective management of protected areas (PAs). Participating countries	
		have already identified priority sites for project interventions. A major component will focus	
		on providing opportunities for enhancing livelihoods for communities that are dependent on	
		the resources in these protected areas, through arrangements that will permit users to earn	
		a living without destroying the future value of the resources. Target groups in these areas	
		will be provided financial and other management assistance to take advantage or the new	
		livelihood opportunities through a special developmental fund" (OECS 2012, online).	
	14. Staff participate	In 2009, Mr Carlos Fuller, the Centre's current International and Regional Liaison Officer,	<b>♦</b>
	in ongoing	participated in a UNFCCC Technical Workshop on Increasing Economic Resilience to Climate	
	training	Change and Reducing Reliance on Vulnerable Economic Sectors through Economic	
	programs.	Diversification (IISD Reporting Services 2009). In 2010, he participated in a UNFCCC Latin	
		America and Caribbean Regional Workshop on Preparing Technology Transfer Projects for	
		Financing (UNFCCC Secretariat 2010).	
		*Little evidence of other staff participating in training; most training sponsored by external	
		organisations such as the UNFCCC Secretariat*	
	15. Staff	?	(NE)
	performance is		
	appraised		
	(formally or		
	informally) at		
	least annually.		
	16. The organisation	Article 16(2) of the Establishment Agreement provides for the establishment of a reserve	$\overline{\checkmark}$
	has untied	fund: "The resources of the Reserve Fund shall consist of the following:	
	funding.		
		<ul> <li>grants from international donors and sponsors of the Centre;</li> </ul>	

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		grants from Members and Associate Members;	
		<ul> <li>grants from entities, public and private, which are not sponsors of the Centre;</li> </ul>	
		<ul> <li>unspent balances from the annual budgets of the Centre;</li> </ul>	
		<ul> <li>revenues derived from the operations of the Centre;</li> </ul>	
		• income from investments of the Centre" (CARICOM Secretariat, 2011a, online).	
		The Centre is "advancing efforts to set up a Trust Fund. The Fund, which has been seeded	
		with US\$1M from the Republic of Trinidad and Tobago, will be an independent arrangement	
		administrated by the CDB [Caribbean Development Bank] that would allow the Centre to co-	
		finance projects and fund project priorities over the long-term" (CCCCC, 2015a, online).	
	17. The organisation	"The Centre continued the execution of eight medium to large projects/programmes over	$\overline{\checkmark}$
	has funds	the last twelve months [2014-2015]. The Centre's most recent programme is a €12.8 million	
	exclusively	initiative to address ecosystems-based adaptation under an agreement with the German	
	dedicated to	Development Bank (KfW). The KfW supported engagement seeks to protect the region's	
	climate change	extensive coastal resources through a combination of ecosystems-based adaptation and	
	adaptation.	environmental engineering approaches that will also embed livelihood considerations as a	
		core element of the programme. The comprehensive investment under the initiative	
		developed by the Centre, in conjunction with the KfW, will focus on enhancing the resilience	
		of the region's coastal resources to the impacts of climate change and climate variability"	
		(CCCCC 2015a, online).	
	18. External funding	"The Centre has expanded rapidly since it commenced operations in 2005, having developed	<b>♦</b>
	to the	the capacity to successfully execute a suite of regional climate change related programmes	
	organisation has	worth between US\$40 and US\$50 million over the last five years" (CCCCC 2015a, online).	
	increased over		
	the past 5 years.	"Australia Aid has committed AU\$4.19 mill for direct financial support to the CCCCC. The EC	
		have provided €8m for the execution of a CARIFORUM programme on climate change which	
		will significantly increase climate and coral reef monitoring and early warning systems as	

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		well as fund adaptation pilots. The Caribbean Development Bank (CDB) is also contributing	
		USD 470,250 from its Special Develo pment Fund to fund technical services for the	
		development of a pipeline of C C investment projects. CDKN are supporting the	
		development of a risk management framework for decision making in 2 - 3 states (£405,000)	
		, In total £16.27 m has been committed to the IP through CCCCC to date (DFID 's	
		contribution being 30% of this Sum)" (CDB, 2012, p. 8).	
	19. The organisation	The Centre "is primarily funded through grants and not government subventions" (CCCCC	$\overline{\checkmark}$
	has multiple	2015a, online). Based on projects identified as "current" (CCCCC 2015b, online):	
	funding sources.		
		• "In December 2010, in Cancun, Mexico, SIDS DOCK was launched with four Partners:	
		the United Nations Development Programme (UNDP), the World Bank, AOSIS and	
		the Government of Denmark, which announced a grant of USD14.5 million in start-	
		up contributions" (emphasis added) (CCCCC 2015k, online).	
		"The Database Management System for Regional Integrated Observing Network for	
		Environmental Change in the Wider Caribbean (DBS) is executed by the Caribbean	
		Community Climate Change Centre (CCCCC) with the financial support of the Inter-	
		American Development Bank (IDB)" (emphasis added) (CCCCC 2015g, online).	
		The Coastal Protection for Climate Change Adaptation in the Small Island States in	
		the Caribbean Project is funded by the German Ministry for Economic Cooperation	
		and Development (BMZ) (CCCCC 2015b).	
		"Executive Director Dr Kenrick Leslie says the Centre, under a directive from CARICOM	
		Heads, has been "working with national governments to put together programmes that	
		would help them develop bankable projects that can be funded under the various	
		mechanisms under the United Nations Framework Convention on Climate Change. The	
		Centre is putting maximum effort to ensure CARICOM Member States get their fair share of	
		the Green Climate Fund (GCF), Adaptation Fund (AF) and other funds to help them in their	

APPENDICES
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SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		adaptation efforts. That is our primary thrust— to meet the mandate given to us by the	
		regional Heads" (CCCCC 2015a, online).	
		CCCCC is the RIE for Green Climate Fund (Jamaica Observer 2015).	
	20. The organisation	The Centre is "advancing efforts to set up a Trust Fund. The Fund, which has been seeded	Ø
	has financial	with US\$1M from the Republic of Trinidad and Tobago, will be an independent arrangement	
	reserves.	administrated by the CDB [Caribbean Development Bank] that would allow the Centre to co-	
		finance projects and fund project priorities over the long-term" (CCCCC 2015a, online).	
	21. The organisation		
	has sufficient		
	technological		
	resources (e.g.		
	intellectual		
	property rights,		
	patents,		
	copyright,		
	software licences		
	etc.) to carry out		
	its climate change		
	adaptation		
	mandate.		
4. Structure,	9. There is a low		
systems	degree of		
and	hierarchy (i.e. few		
processes	hierarchical		
	levels).		

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
	10. The organisation		
	has a human		
	resource		
	management		
	system that		
	supports the		
	shaping of		
	organisational		
	culture and staff		
	recruitment,		
	training,		
	development and		
	retention.		
	11. There is a	Article 11(m) of the Establishment Agreement states that that Board shall: "prepare for	<b>♦</b>
	financial	submission to the Council, annual financial reports regarding the investments and use of the	
	management	resources of the Reserve Fund" (CARICOM Secretariat 2011a, online).	
	system that		
	meets	Article 15(7) of the Establishment Agreement states that: "The finances of the Reserve Fund	
	International	shall be audited annually by the auditors appointed by the Centre to audit its accounts. The	
	Financial	Report of the Auditors shall be submitted to the Board for consideration and approval"	
	Reporting	(CARICOM Secretariat 2011a, online).	
	Standards (IFRS)		
	or its equivalent.	"Following decisions taken at last year's Board of Governors meeting, the Board has	
		strengthened its fiduciary oversight through a Finance and Audit Sub-Committee of the	
		Board of Governors, annual internal audits" (CCCCC 2015a, online).	
	12. The organisation		
	applies risk		

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
	management		
	principles in its		
	decision-making		
	processes.		
	13. The organisation		
	has a centralised,		
	user-friendly		
	internal data		
	management		
	system.		
	14. The organisation		
	has a user-		
	friendly		
	project/program		
	management		
	system (e.g. that		
	supports staff to		
	identify, schedule		
	and track		
	resources etc.).		
	15. There are		
	mechanisms that		
	support vertical		
	and horizontal		
	communication.		
	16. There are internal		
	dispute		

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
	resolution		
	protocols.		
6. Research	5. The organisation	Article 5 of the Establishment Agreement states that functions of the Centre include: "(f) co-	$\overline{\checkmark}$
and	has plans and	ordinating (and initiating) the development of regional research programmes, including	
collaborati	policies that	adaptation of global climate and impact modelling efforts and specialised training focussed	
on capacity	support research.	on effective adaptation to global climate change" (CARICOM Secretariat 2011a, online).	
		Article 15 of the Establishment Agreement states that functions of the Technical Secretariat	
		include: "(e) provide advice on scientific programmes, international co-operation in research	
		and development relating to climate change, as well as on developing relevant endogenous	
		capabilities" (emphasis added) (CARICOM Secretariat 2011a, online).	
	6. There are	?	(NE)
	organisational		
	funds allocated		
	for research.		
	7. The organisation	The CCCCC is part of a research consortium in the Caribbean (Colley et al. 2011). The	$\overline{\checkmark}$
	has equipment,	consortium carries out "several activities that make up the Caribbean Modelling Initiatives	
	expertise and/or	(CMIS), which will provide outputs that can assist decision makers in the public and private	
	resources (e.g.	sector understand the predicted changes in climate, their impacts and socio-economic	
	access to journal	effects in the Caribbean region. The modelling initiatives are divided into three sections: 1.	
	articles etc.) for	Caribbean Climate Modelling Initiative (CCMI), 2. Impact Studies Modelling, and 3. Economic	
	research.	Modelling" (Colley et al. 2011, p. 15). The Centre submitted "information regarding its	
		efforts in climate modelling, downscaling and the use of climate change scenarios []in	
		response to SBSTA's call contained in FCCC/SBSTA/2006/11 paragraph 42 inviting regional	
		organizations to submit information on ways in which they contribute to: (a) Development,	
		availability and use of climate models, and development of, access to, and use of climate	
		change scenarios, especially those that provide subregional and regional specificity,	

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SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		including data downscaled from general circulation models; (b) Enhanced capacity and experience with the use of these different models, statistical approaches and outputs, and any available training opportunities; and (c) Identification and reduction of uncertainties" (CCCCC 2008, p. 1).	
		"Japan's Asia-Pacific Network for Global Change Research and the Caribbean region's CCCCC operate in a similar way" (UNFCCC Secretariat 2009, p. 9).	
	8. The organisation's current strategic plan (or a similar document) outlines plans for collaboration with multiple stakeholders on adaptation-related initiatives.	Article 5 of the Establishment Agreement states that functions of the Centre include: "(a) collecting, analysing, storing, retrieving and disseminating meteorological and sea-level data relevant to the observation of climate change and facilitating, in collaboration with specialised Caribbean agencies, the collection of information about the impact of climate change on the economic sectors in the Caribbean; [] (d) in collaboration with Members and relevant agencies, developing special programmes to address implications in the Region for coastal zone management, disaster management, and potentially vulnerable sectors such as tourism, health, agriculture and insurance" (emphasis added) (CARICOM Secretariat 2011a, online).  The Board of Directors/Governors, at its June 2015 meeting, "agreed that the Centre will deepen engagement with the private sector to ensure broad utilisation of the seminal Caribbean Climate Online Risk and Adaptation Tool (CCORAL), pursue closer collaboration with the Caribbean Public Health Agency (CARPHA, which includes the former CEHI), expand	
		its youth focused public education work and welcome at least one new beneficiary country [Martinique]" (CCCCC 2015a, online).	
3. Needs and goals	7. The project documents contain evidence	2. Project/Program Effectiveness - SPACC  "The main lessons from the implementation of CPACC/ACCC/MACC include: a) Climate adaptation is a long term process. Institutional capacity building and facilitating an enabling environment for adaptation are processes that might require a long period to mature and consolidate; b) Climate change impacts key economic sectors in the Caribbean; c) Climate	Ø

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SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
	that the project/program fills an existing need with relation to climate change adaptation.	and environmental data collection and processing systems are essential; and d) Public education and outreach is required. These lessons has [sic] been complemented by highlighting the importance of community participation in the process of adopting land use plans and protected areas management plans. In this context, the SPACC project will provide information on how adaptation measures can be implemented and how to deal at a local community level with adaptation as demonstrated in the following scheme. It will also inform the MACC on the process of adaptation, its costs and benefits and serve as test to the tools it has developed." (emphasis added) (World Bank 2006, p. 18).  "The project complements the goals of the Mainstreaming Adaptation to Climate Change in the Caribbean (MACC) Project and applies the lessons and information gathered through the Caribbean Planning for Adaptation to Climate Change (CPACC) project by piloting the implementation of adaptation measures in countries that have already taken mainstreaming decisions and seek to execute specific measures to address the impacts of climate change on biodiversity and land degradation. This will be achieved through: (i) the detailed design of pilot adaptation measures to reduce expected negative impacts of climate change on marine and terrestrial biodiversity and land degradation; and (ii) the implementation of pilot adaptation investments. The SPAC [sic] project will also pioneer the establishment of institutional and operational frameworks for addressing holistically multiple convention objectives in accordance with national priorities, thereby serving as a model for other regions and countries. The ultimate goal is to make efficient and integrated use of the limited human and financial resources for these technical areas and illustrate how adaptation measures can be effectively implemented at the national and community levels" (World Bank 2006, p. 6).	
	8. The project/program' s adaptation components could be considered 'transformational		

SUB-COMPONENT		INDICATOR	EVIDENCE	RATING
		' (i.e. the		
		project/program		
		focusses on		
		"larger, more		
		profound system		
		changes" and		
		requires a		
		"paradigm shift"		
		in the way it is		
		framed and		
		implemented).		
	9.	Climate change	"The Global Environment Objective [GEO] [of the project] was to produce knowledge that	V
		adaptation is a	would be of global value on how to implement adaptation measures in small island states,	
		goal of the	which could be applicable to other countries in the region, and in the world, even if they	
		project/program.	were not participating in the project" (World Bank 2012, p. vi).	
			The project development objective (PDO) "was to support efforts by Dominica, Saint Lucia	
			and St. Vincent and the Grenadines to implement specific (integrated) pilot adaptation	
			measures addressing primarily, the impacts of climate change on their natural resources	
			base, focused on biodiversity and land degradation along coastal and near-coastal areas.	
			They were achieved through: (i) the detailed design of pilot adaptation measures to reduce	
			expected negative impacts of climate change on biodiversity and land degradation; and (ii)	
			the implementation of pilot adaptation investments. Reducing these impacts would	
			primarily result in protection of biodiversity and prevention of land degradation but would	
			also induce economic benefits in the tourism, fisheries, agriculture and forestry sectors. It	
			would also help maintain the resource base upon which these economic activities rely,	

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SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		promoting a climate resilient sustainable development" (emphasis added) (World Bank	
		2012, p. vi).	
	10. The	"Figure below [figure actually missing from document!] presents a description of the long-	Ø
	project/program'	term adaptation process, undertaken through the Bank and emphasizing the relationship	
	s goals reflect the	between previous work under CPACC and ACCC, the ongoing MACC Project, and the SPACC	
	long-range	Project. It also indicates that this is a long-term and continuous effort to face what	
	impacts of	constitutes an ever-growing threat to the sustainability of the region. Together, these	
	climate change.	activities correspond to the stages of adaptation envisioned under the Conference of	
		Parties' (COP's) guidance to the GEF. CPACC (Stage I) focused on building awareness to	
		climate change issues among public officials and the political sector, and initiating the	
		process of strengthening the knowledge base. MACC (Stage II) supports further capacity	
		building, facilitates the formulation of an enabling environment for adaptation and the	
		formulation of adaptation measures. SPACC will fund specific adaptation measures" (World	
		Bank 2006, p. 17).	
		*Also see 1.1. (a) → underline	
		"Economic analyses of proposed adaptation measures will be undertaken as part of the	
		design process (Component 1). In the economic analysis consideration will be given to the	
		long term character of the expected benefits and costs. Community, national and sectoral	
		benefits will be identified and quantified as part of the analysis. An incremental cost analysis	
		and an accounting of local and global benefits will also be included. A financial analysis will	
		be conducted as part of the selection process for site specific adaptation measures, which	
		will guide the decision-making process for the identification of appropriate and economic	
		efficient interventions. During project implementation data will be gathered to assess actual	
		benefits and costs of pilot measures" (emphasis added) (World Bank 2006, p. 23).	

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SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		St. Lucia	
		Indicator 5: "Results from the implementation of Vieux Fort rainwater harvesting and waste water treatment pilot documented & disseminated by the Planning Ministry through a TN and a workshop for government, private sector and nonprofit [sic] stakeholders" (World Bank 2012, p. viii).	
		Indicator 6: "Vieux Fort rain water harvesting system reduces the consumption of 3,000 cubic meters per year of potable water from the water utility" (World Bank 2012, p. ix).	
		Indicator 7: "The Ministry of Physical Planning and Environment submits for Cabinet approval a decree to enforce rain water harvesting on new touristic activities" (World Bank 2012, p. ix).	
		Indicator 8: "Successful Vieux Fort waste water treatment system contributes to reduce organic load to the coastal ecosystems in the Pointe Sable Environmental Protection Area by canceling [sic] actual waste water sewerage outflow into the coast" (World Bank 2012, p. ix).	
		Indicator 9: "Information campaign implemented by the Ministry of Physical Planning and Environment to disseminate the lessons of the Marchand building pilot" (World Bank 2012, p. x).	
		St. Vincent and the Grenadines	
		Indicator 10: "Institutional viability of Bequia water desalination & distribution system is demonstrated by an operative, adequately staffed Central Water & Sewage Authority office	

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		for the collection of consumer fees, and operation & maintenance of the system" (World	
		Bank 2012, p. x).	
		Indicator 11: "Technical viability of Bequia desalination, water distribution and renewable energy pilot is demonstrated by an operative desalination plant producing 50 m3 per day and an operative renewable energy device producing an average of 10,000 kWh per month" (World Bank 2012, p. xi).	
		Indicator 12: "Financial viability of Bequia desalination, water distribution & renewable energy pilot is demonstrated by a financing mechanism including tariffs, budgetary contributions and a renewable energy source to cover maintenance & offset incremental costs" (World Bank 2012, p. xi).	
		Indicator 13: "The Ministry of Health and Environment gains capacity to manage water stresses related to climate change through the extraction of useful lessons from Bequia pilot" (World Bank 2012, p. xii).	
		GEO Indicators	
		Indicator 14: "Global Learning Value. Lessons learnt by the CCCCC are disseminated through technical notes" (World Bank 2012, p. xii).	
		Indicator 15: "University of West Indies receives from the Meteorological Research Institute of Japan, useful climate modeling data to enhance its regional climate model and makes use of the results in research and teaching" (World Bank 2012, p. xiii).	

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SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		"The design of the M&E, as reflected in the results framework, did not always establish clear	
		links between the objectives, outputs and indicators. Initial monitoring was hard to perform	
		(for example, an indicator related to the number of nesting parrots in a Dominica National	
		Park). Once the Project was restructured, the indicators became easier to measure and to	
		report to, thus allowing the results framework to be used as the instrument to evaluate on-	
		the-ground progress. Quantity and quality of information varies between the three	
		participating countries, with St. Lucia undergoing a very detailed reporting discipline while	
		St. Vincent and Dominica lagged behind" (World Bank, 2012, p. 13).	
	12. Member	Government endorsement letters state that the project was developed in close	<b>♦</b>
	Countries were	collaboration with the CCCCC and the WB. They also state that the project was developed in	
	involved in	accordance with national development and environmental priorities e.g. the letter from the	
	developing the	SVG GEF Focal Point stated, "The project is designed in accordance with national	
	climate change	development environmental priorities as defined in "St. Vincent and the Grenadines' draft	
	adaptation	Climate Change Policy and Implementation Plan" and St. Vincent and the Grenadines	
	components of	Biodiversity Strategy and Action Plan", which has been approved by Cabinet" (GEF 2013,	
	the	online).	
	project/program.		
		This process however proved to be useful as different actors in the participating countries	
		engaged in the decision making process during the design phase, and obtained significant	
		insights and capacities to improve the quality of interventions moving forward, and be	
		better prepared to scale up successful activities in the future" (World Bank 2012, p. 9).	
		"Although the Grant Agreement stipulated that participating countries should provide	
		resources for national coordination, financial shortages generated in part by the	
		international financial crisis prevented this from happening (with the notable exception of	
		Saint Lucia). The implementing agency, however, stepped up to this challenge and with their	
		own funds hired technical coordinators for Saint Vincent and Dominica. In general terms,	

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SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		however, these coordinators did not have the authority to speak on behalf of government"	
		(World Bank 2012, p. 9).	
4. Scope	5. The project/program addresses multiple climate or climate-induced vulnerabilities (e.g. vulnerability to sea-level rise, increased sea surface and air temperature, changing rainfall patterns etc.).		<b>☑</b>
		"Climate change will affect the physical and biological characteristics of the Caribbean Sea and their coastal areas, modifying their ecosystem structure and functioning" (World Bank 2006, p. 3).  "Also, in near-shore marine and coastal areas, many wetlands and coastal forests will be affected by changes in sea level and storm surges" (World Bank 2006, p. 3).	

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		"Climate variability and intensification of hurricanes pose a significant threat to the	
		sustainable development of Small Island Developing Sates" (World Bank 2006, p. 3).	
		"The largest category of impacts is the loss of land, tourism infrastructure, housing, other	
		buildings, and infrastructure due to sea-level rise" (World Bank 2006, p. 4).	
	6. The	"The Report also highlights the severity of their expected climatic shifts, the low level of	×
	project/program	their economic development which restricts their ability to cope with expected changes	
	addresses	without great economic stress" (World Bank 2006, p. 2).	
	multiple non-		
	climate-induced	"The region economic activity is very dependent on a natural resource base which is highly	
	vulnerabilities	vulnerable to climate change impacts. The CARICOM countries are highly dependent on	
	(e.g. poverty,	natural resources and are thus very vulnerable to the impacts of climate change. The	
	deforestation	potential economic impact of climate change on the CARICOM countries is estimated at	
	etc.).	between US\$1.4 and \$9.0 billion for the impacts that could be estimated assuming no	
		adaptation to climate change. The wide range for the estimate of potential economic	
		impacts is due more to the uncertainty relating to the values and assumptions used than to	
		the uncertainty about climate change. In the low scenario the total impact averages about	
		5.6 percent of the gross domestic product (GDP), ranging from 3.5 percent in Trinidad and	
		Tobago to 16 percent in Guyana. In the high scenario the total impact averages over 34	
		percent of GDP, ranging from 22 percent in Trinidad and Tobago to 103 percent in Guyana"	
		(World Bank 2006, pp. 3-4).	

<sup>&</sup>lt;sup>1</sup> "This estimate is based on limited data and numerous assumptions and hence is only a very rough initial estimate of the potential economic impact due to climate change. This estimate of the potential economic impact of climate change should be used with great care because it does not reflect possible adaptation to climate change and because of the uncertainty in the data and assumptions. Those cautions apply with even greater force to the estimates for specific categories of impacts and for individual countries. Estimates are often based on data for a single country, which may not be correct for other countries" (World Bank 2006, pp. 3-4).

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		*Includes a table called "Vulnerability of Ecosystem Services and	
		Implications for Economic Activity in small island states in the Caribbean" (World Bank 2006,	
		pp. 4-5).	
5. Logic, design and adequacy	3. The logic/design of the project/program's climate change adaptation components is evidence-based, in the context of SIDS.	Illustrations of the "lack of clear national counterparts that link responsibility with authority" include: "(i) the development of the desalination plant in Bequia, St. Vincent involing [sic] two basic elements; installing a plant to provide freshwater for the target community of Paget Farm, and the installation of a renewable power generation facility to reduce operation costs. In theory, this approach would generate revenue to support maintenance of the plant by selling power back to the national grid. While in theory the idea is excellent and technically sound, missing from the design was the inclusion of a mechanism to ensure that the policies of the national power company (VINLEC) would be changed to allow the purchase of excess power. Additionally, binding arrangements with the national water authority (CWSA) for operation and maintenance of the plant were also left to the implementation phase. A positive aspect to this is that the Project served as a catalyst to start the dialogue on those issues and anticipate some of the shortcomings that will appear when the approach is scaled up to the rest of the island and/or to other islands" (emphases added) (World Bank 2012, pp. 9-10).  "Similarly, in Dominica, the Project funded the installation of a pilot irrigation system supporting farmers engaged in alternative agriculture projects, notably greenhouse agriculture. In this case, the Project design was focused on the contribution to agricultural alternatives without considering the operational requirements of a community irrigation system. As irrigation is somewhat new to Dominica, no national mechanisms exist to	❖
		empower communities to get organized, operate and maintain such systems. This requires	
		the formation of a water association and the empowerment of the association to charge	
		user fees, contract for maintenance and manage water distribution within the user	
		community. While the pilot is contributing to help steer the dialogue in Dominica towards	

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SUB-COMPONENT		INDICATOR	EVIDENCE	RATING
			the organization of water user associations, these are not yet in place due to gaps in existing	
			regulations. These gaps have been identified, and are currently being addressed, which has	
			been an unintended positive aspect of the activity" (World Bank 2012, p. 10).	
	4.	The project	"Project design lacked specificity. The description of the Components was general in nature	$\Diamond$
		documents	and actual activities were largely determined by the result of studies and designs prepared	
		contain evidence	during the Project's implementation. While this is not necessarily a problem in large	
		that the	projects, the funding levels appropriated under this Project were insufficient to take this	
		logic/design of	kind of approach. The Project had to be restructured, and two out of the initial seven pilot	
		the	interventions were dropped because of land tenure issues, not anticipated during	
		project/program'	preparation. Most of the core time of Project implementation was devoted to agreeing on	
		s climate change	final designs, finalizing them, and preparing bidding documents, instead of improving the	
		adaptation	operation arrangements and performing monitoring of the different pilots. This process	
		components is an	however proved to be useful as different actors in the participating countries engaged in the	
		effective means	decision making process during the design phase, and obtained significant insights and	
		to achieve its	capacities to improve the quality of interventions moving forward, and be better prepared	
		objectives.	to scale up successful activities in the future" (World Bank 2012, p. 9).	
			"Lack of clear national counterparts that link responsibility with authority. A significant issue	
			inherent in Project design was the effectiveness of the implementation arrangements. In all	
			cases, specific national line agencies were engaged to support Project development through	
			the use of a national coordinator. Although the Grant Agreement stipulated that	
			participating countries should provide resources for national coordination, financial	
			shortages generated in part by the international financial crisis prevented this from	
			happening (with the notable exception of Saint Lucia). The implementing agency, however,	
			stepped up to this challenge and with their own funds hired technical coordinators for Saint	
			Vincent and Dominica. In general terms, however, these coordinators did not have the	
			authority to speak on behalf of government. Critical decisions required to ensure the success	

- Daniel Gilfillan – Climate change adaptation and health in Southeast Asia: What do regional organisations contribute?

of the Project were diffused through participating agencies with no clear mechanism for	
getting to definitive decisions and binding agreements. As a regional technical advisory agency, CCCCC is limited in its ability to affect national decisions. It has to be noted, however, that once the Project was restructured, and its final scope better defined, the implementation phase sped up significantly and the Project ultimately met its goals" (World Bank 2012, p. 9).	
6. Resources  6. Staff members are assigned exclusively to the project/program.  The Project was "executed through a Project Manager contracted by, and based at the Centre and a National Coordinator, also contracted by the Centre, but operating from the Environment Section of this Ministry [of Physical Development, Environment and Housing, St. Lucia]" (The Voice 2008, online). But the Project Manager [Mr Winston Bennett] was managing several projects at the same time: "Prior to joining CROSQ, Mr. Bennett was employed as Project Coordinator/Technical Leader for the CARICOM Climate Change Centre (CCCCC) and the CARICOM Secretariat where he managed several projects including the Special Program for Adaptation to Climate Change (SPACC), funded by the World Bank" (emphasis added) (CROSQ 2011, pp. 1-2).  Also to note:  "While technically experienced in funds management and contract execution, CCCCC encountered difficulties with the country counterparts early in Project implementation largely related to the organization and management of the Project. Weaknesses became apparent early in the process notably with the technical management team provided by CCCCC and the requirement to operate through a system of country project coordinators. These required political negotiations with the respective countries to ensure effective project coordinators were appointed. The diffusion of authority between the participating country agencies, Project coordinators and CCCCC created a significant impediment to implementation as no central point of authority at the national level was available to make	

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SUB-COMPONENT		INDICATOR	EVIDENCE	RATING
			decisions with respect to specific interventions or implementation activities on the ground.	
			This lack of clear decision authority was particularly problematic in St. Vincent and	
			Dominica. In St. Lucia, the problem was no less significant but was generally overcome due	
			to the management skills of the coordinator and the participation of government agencies	
			not originally involved in Project design. With respect to CCCC, as a regional agency their	
			strengths relate to funds management and general technical assistance on a macro scale.	
			The management team selected to oversee the Project lacked the technical support	
			required to implement specific activities at the country level. Additionally, with much of the	
			operational responsibility placed on the national coordinators, CCCCC's ability to directly	
			influence implementation and decisions was limited, affecting the efficiency of Project	
			execution" (emphasis added) (World Bank 2012, p. 11).	
	7.	The	Project Manager – Mr Winston Bennett:	<b>♦</b>
		project/program		
		team includes	"Mr Bennett holds a Bachelor of Science (BSc) in Industrial Engineering from the University	
		staff members	of the West Indies, St. Augustine Campus in Trinidad and Tobago and an MBA from McGill	
		with	University in Canada. He also has an Associate Degree with combined Majors of	
		qualifications and	Mathematics, Chemistry and Biology and has extensive experience in project management,	
		experience in	among other areas" (CROSQ 2011, p. 1).	
		climate change		
		adaptation.	While at CCCCC, Mr Bennett also managed the following projects: "Capacity for Adaptation	
			to Climate Change (ECACC, [2007-2011]), funded by the Department for International	
			Development (DFID); and the International Hydrological Program (HIP) Adoption Measures	
			to Climate Change Impacts on Coastal Aquifer Systems in the Caribbean project [2009-2011],	
			funded by UNESCO. During his tenure at CCCCC, he was also responsible for providing	
			overall financial and administrative management and technical implementation assistance	
			for the Mainstreaming for Adaptation to Climate Change Project (MACC)" (CROSQ 2011, p.	
			2).	

SUB-COMPONENT		INDICATOR	EVIDENCE	RATING
			"Mr. Bennett's [employment] portfolio also includes his holding the posts of: Director of the Water and Wastewater Sector of the Public Utilities Commission in Belize; Executive Director of the Belize Social Investment Fund (BSIF)" (CROSQ 2011, p. 2).	
			Also to note:	
			In a February 2011 procurement notice for the Procurement and Installation of Photovoltaic System for Bequia, St. Vincent and the Grenadines (SPACC-ICB-SV-03), Mr Earl Green was identified as a Project Manager (see World Bank 2011).	
	8.	The	Project Manager – Mr Winston Bennett:	Ø
		project/program team includes staff members with qualifications and experience in project/program management.	Mr Bennett was "Financial Controller of the Water and Sewage Authority (WASA) in Belize. He also held, inter alia, positions of Manager of Customer Relations, Public Relations and Business Development, Project Development Specialist/Senior Economist, and Senior Project Officer (Industry)/Industrial Project Officer at various organizations [sic] throughout his employment" (CROSQ 2011, p. 2).  Also to note:  "Throughout the Project life the CCCCC was staffed with a seasoned Finance Professional	
			with no turn over" (World Bank 2012, p. 14).	
	9.	The project documents contain evidence that there are sufficient staff		

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SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
	members to		
	achieve the		
	project/program		
	objectives.		
	10. The project	"Inappropriate levels of funding: The Project initially included US\$200,000 to conduct	×
	documents	identification, evaluation, selection and design of adaptation measures (Component 1).	
	contain evidence	However, these tasks required greater levels of effort, including frequent trips by CCCCC	
	that there is	from Belize to the PCs. The Project required highly specialized studies with participation of	
	sufficient funding	cutting-edge institutions, such as the hurricane wind study, performed for Saint Lucia, or the	
	for the	preparation of specialized designs and technical specifications for the desalination plant and	
	project/program'	alternative power generation in St. Vincent. Resources allocated to these tasks were	
	s climate change	insufficient, and a restructuring had to be done to reallocate more resources from	
	adaptation	elsewhere. Regarding the actual on-the-ground pilot projects, the budget initially allocated	
	components.	was US\$1.5M. Unfortunately, there was no consideration for design requirements or how	
		those resources would be distributed amongst the PCs. Seven pilot projects were supposed	
		to be financed with those funds, but it became clear that significantly more resources were	
		needed" (World Bank 2012, pp. 11-12).	
		"Financial crisis affected some programmed activities: The international financial crisis	
		impacted some of the planned activities. The PCs, who were largely dependent on tourism,	
		were significantly impacted, and as a result, failed to provide their expected counterpart	
		funding. To promote continued country participation and to comply with requirements for	
		country contributions, the Project was restructured to include the provision of in-kind	
		contributions. The IUCN, whose contribution under component 3 was essential to lead,	
		coordinate and execute the different activities of this component, suffered some financial	
		hardships that forced them to withdraw from the Project. This component was downscaled	
		to a smaller but still useful number of activities. In St. Vincent, the Government's	

INDICATOR	EVIDENCE	RATING
implemented, a proposed.	"The restructuring of the Project involved changes in the outcome indicators in order to more accurately reflect the Project's objectives and the nature of the interventions; modifications to the Project activities in St. Vincent and the Grenadines (cancelation of 2 pilots); adjustment of the disbursement categories to finance workshops and operating costs; modification of the financing plan to close the financing gap created by changes in the co-financing resources; and reallocation of the proceeds of the GEF Trust Fund Grant" (World Bank 2012, p. 8).	
is internally	See Paragraph 1 in 7.2 below.	<b>♦</b>
is externally	Unaudited Financial Reports) including financial reports and procurement plans; annual work plans and reports; a mid-term review (MTR) conducted jointly by World Bank and CCCCC teams; and the conduct of annual audits. Regular audio-conferences between CCCCC, technical coordinators and Bank team took place" " (World Bank 2012, p. 13).  "The mid-term review (September 2010) included a thorough analysis of the project implementation, identifying the constraints and recommending the restructuring of the project, while leaving the philosophy of the components, their distribution and flow unchanged. The restructuring involved dropping two of seven pilot projects, reallocating project proceeds and changes in the project performance indicators to better reflect the	Ø
	implemented, a proposed.  4. The project/prograr is internally monitored and evaluated.  5. The project/prograr is externally monitored and	implemented, as proposed.  "The restructuring of the Project involved changes in the outcome indicators in order to more accurately reflect the Project's objectives and the nature of the interventions; modifications to the Project activities in St. Vincent and the Grenadines (cancelation of 2 pilots); adjustment of the disbursement categories to finance workshops and operating costs; modification of the financing plan to close the financing gap created by changes in the co-financing resources; and reallocation of the proceeds of the GEF Trust Fund Grant" (World Bank 2012, p. 8).  4. The project/program is internally monitored and evaluated.  5. The project/program is externally monitored and evaluated.  "Reporting, monitoring and evaluation included World Bank supervision, which was typically undertaken together with the implementing agency, CCCCC; quarterly IUFRs (Interim Unaudited Financial Reports) including financial reports and procurement plans; annual work plans and reports; a mid-term review (MTR) conducted jointly by World Bank and CCCCC teams; and the conduct of annual audits. Regular audio-conferences between CCCCC, technical coordinators and Bank team took place" " (World Bank 2012, p. 13).  "The mid-term review (September 2010) included a thorough analysis of the project implementation, identifying the constraints and recommending the restructuring of the project, while leaving the philosophy of the components, their distribution and flow unchanged. The restructuring involved dropping two of seven pilot projects, reallocating

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		the overall scope of the Project was reduced. However, SPACC original objectives did not	
		change after the restructuring" (World Bank 2012, p. 8).	
10. Sustainabili	2. There are		
ty	sustained outputs		
	from the		
	project/program.		
		3. Output Effectiveness	
3. Goal	2. There is evidence	*Annual reports not available.	(NE)
attainment	in the most		
	recent annual		
	report or		
	evaluation that		
	the climate		
	change		
	adaptation-		
	related objectives		
	of the		
	organisation are		
	being achieved.		
4. Research	<ol> <li>The organisation</li> </ol>	The Centre "is repository and clearing house for regional climate change information and	<b>♦</b>
and	produces and/or	data" (CCCCC 2015c, online).	
knowledge	publishes		
manageme	research that is	"The Caribbean Community Climate Change Centre's (CCCCC) Regional Clearinghouse	
nt	relevant to	Database is the region's premier repository of information and data on climate change	
	climate change	specific to the region. This dedicated climate change resource was first explored over a	
	adaptation at	decade ago during the course of the <u>Caribbean Planning for Adaptation to Climate Change</u>	
	least annually.	(CPACC) project (1997 to 2001), but the current iteration was spurred by a CDB project grant	

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SUB-COMPONENT		INDICATOR	EVIDENCE	RATING
			(2010) for a new CCCCC website and information portal focused on gathering, disseminating	
			and exchanging information and data on climate change. The Clearinghouse has grown	
			steadily since its launch in 2010, from a few dozen documents to over 3,830 as of September	
			2013. The rapid expansion of the database will continue as the Centre adds new documents	
			every month, including books, videos, national/regional strategy documents, project reports,	
			studies and scholarly articles, among others. The expansion of the database is	
			complemented by broad use of the facility by target audiences from across the region and	
			internationally— namely the press, the public, project teams, consultants, experts,	
			researchers, students, focal points, governments and partner organizations. This wide usage	
			is evidenced by average monthly downloads of 8,500 documents between December 2012	
			and February 2013" (CCCCC 2015j, online).	
	2.	The organisation	The Centre's clearinghouse mechanism is publicly available at:	$\square$
		makes climate	http://clearinghouse.caribbeanclimate.bz/. Visitors to the site can access information by	
		change	topic or country, and about regional climate models and strategies, programs, policies and	
		adaptation-	projects.	
		relevant research		
		publicly available.		
3. Collaborati	3.	There is evidence	The Centre's regional and international partners, including the IPCC, have endorsed CCORAL	$\square$
on and		that the	(CNS 2015). "CCORAL, which was launched by the Centre in July 2013, is an online support	
advocacy		organisation	tool developed to strengthen climate resilient decision-making processes across various	
		collaborates with	sectors in the Caribbean by embedding a risk ethic" (CNS 2015, online).	
		multiple		
		stakeholders to	"The Centre has been working with the Caribbean Development Bank, its longstanding	
		undertake	partner and a permanent member of the 11 member Board of Governors, and other	
		climate change	development partners to mobilise private sector support for the tool" (CNS 2015, online).	
		adaptation-		
		related activities.		

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
	The organisation advocates for political, financial	"The Centre's most recent programme is a €12.8 million initiative to address ecosystems-based adaptation under an agreement with the German Development Bank (KfW). The KfW supported engagement seeks to protect the region's extensive coastal resources through a combination of ecosystems-based adaptation and environmental engineering approaches that will also embed livelihood considerations as a core element of the programme" (CNS 2015, online).  "The Centre is currently housed in rented facilities provided by the Government of Belize. The Government of Belize has allocated 10 acres of land to the Centre, on which a custom-designed, 'green' facility will be constructed" (CNS 2015, online).  "Executive Director Dr. Kenrick Leslie says the Centre, under a directive from CARICOM Heads, has been "working with national governments to put together programmes that would help them develop bankable projects that can be funded under the various	RATING
	and/or other climate change support for its Member Countries in various fora at different scales.	mechanisms under the United Nations Framework Convention on Climate Change. The Centre is putting maximum effort to ensure CARICOM Member States get their fair share of the Green Climate Fund (GCF), Adaptation Fund (AF) and other funds to help them in their adaptation efforts. That is our primary thrust— to meet the mandate given to us by the regional Heads" (CNS 2015, online).  "The Ministry of Sustainable Development, Energy, Science and Technology in collaboration with the Caribbean Community Climate Change Centre (CCCCC) and the High Level Support Mechanism (HLSM) will be hosting a regional meeting for climate change negotiators and ministers with responsibility for climate change from Wednesday 16th September, 2015 to Friday 18th September, 2015 in Saint Lucia. The meeting which was requested by Prime Minister, Hon. Dr. Kenny D. Anthony at the last meeting of CARICOM Heads in Barbados, is expected to achieve the following:	

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SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		current regional projects and initiatives. The video ends on a cautionary note, pointing to the urgency of policy to commit to a reduction in emissions in order to stem the tide of climate related impacts" (CCCCC 2015d, online).	
6. Education and training	3. The organisation undertakes climate change adaptation stakeholder and/or public awareness activities.	"Cognizant of the threat Climate Change poses to the region's survival and continued development, the Caribbean Community Climate Change Centre launched the 1.5° to Stay Alive campaign ahead of COP15 in December 2009. The two tiered campaign sought to sensitize [sic] citizens across the Caribbean Community about the impact of Climate Change on livelihoods in the region, and make a convincing case at the global level for the reduction of GHG emissions to a level not exceeding 350 ppm (parts per million) as an effective means of stabilising global warming. Owing to the region's vulnerability to climate change and variability and its particularly youthful population, the Centre seeks to engage this significant demographic to shape a robust and appropriate range of responses to ensure climate resilience and safeguard livelihoods. In light of this, the Centre supported a Youth Forum on climate change aimed at high school students in Belize in 2010. Through this initiative, students were engaged about how their individual actions contribute to the broader challenge of climate and the ways in which they can both adapt and mitigate such amidst a changing and variable climate. The project also engaged teachers to examine ways in which climate change education may be mainstreamed into the education sector, and resulted in the creation of a climate change toolkit" (CCCCC 2015h, online).  "The Centre successfully piloted a network of school-based environmental clubs in Belmopan, Belize this year [2015]. This initiative includes 60 to 90 minute weekly meetings, experiential learning, highly interactive group exercises and discussions. This comprehensive youth focused outreach initiative, which also included the first Belize—Mexico Student Exchange on Climate Change, will be a key element of the Centre's public engagement	

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SUB-COMPONENT		INDICATOR	EVIDENCE	RATING
			moving forward. The network of clubs will be rolled out across Belize and in three other	
			CARICOM countries over the next 12 months [July 2015-June 2016" (CNS 2015, online).	
			In 2012, the "Belize Coastal Zone Management Authority and Institute in partnership with	
			the Natural Capital Project, World Wildlife Fund, Inter-American Development Bank,	
			Caribbean Community Climate Change Center, and The Nature Conservancy is hosting a	
			three-day Caribbean Regional Conference entitled, "Integrating Climate Change Adaptation	
			Planning into Coastal Zone Management using Ecosystem Services". Presenters and	
			participants are experts from Jamaica, Barbados, Trinidad & Tobago, Columbia, Guatemala,	
			Canada, the United States, and Belize. Participants will discuss practical ways that coastal	
			and island states can adapt to changes in our environment, and how the natural resources	
			can help" (emphasis added) (PreventionWeb 2012, online).	
			"The workshop is part of the Caribbean Weather Impacts Group (CARIWIG)'s effort to	
			initiate and sustain consultations to determine community needs for the generation of	
			quantitative climate information for climate impact assessments and the broader decision-	
			making process in the Caribbean. The stakeholder consultation will focus on some of the	
			region's economic lifelines: the water, agriculture and coastal resource sectors. The	
			discussions will shape the course of the CARIWIG Project, which seeks to create tools that	
			will enable the region to reliably access locally relevant unbiased climate change information	
			in a manner that complements their planning cycle. The CARIWIG project is funded by the	
			Climate and Development Knowledge Network (CDKN ) and will be carried out in	
			partnership with the Caribbean Community Climate Change Centre (Belize), University of	
			East Anglia (UK), University of the West Indies (Jamaica) and the Institute of Meteorology	
			(Cuba)" (emphasis added) (PreventionWeb 2013, online).	
	4.	The organisation	The Centre has "been recognised by the United Nations Institute for Training and Research	$\square$
		develops and/or	(UNITAR) as a Centre of Excellence, one of an elite few" (CARICOM Secretariat 2011b).	

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
	implements		
	training programs	"The Caribbean Community Climate Change Centre (CCCCC) recently organized a training	
	for stakeholders	course entitled "The Use of Sector-Specific Biophysical Models in Impact Assessment in the	
	in issues related	Caribbean". This course was implemented under the European-Union (EU) funded Regional	
	to climate change	Global Climate Change Alliance (GCCA) Project in partnership with the Government of	
	adaptation.	Jamaica. The main objective of the training course was to provide technicians and	
		practitioners of the Caribbean region with an opportunity to apply existing climate models	
		as tools for sector-specific decision-making in the context of climate change adaptation. The	
		training course covered two modules: (1) "The Science of Climate Change" and (2)	
		"Vulnerability and Adaptation to Climate Change". The course curriculum was based on the	
		training manual and workbook developed by Cuba's Institute of Meteorology (INSMET) and	
		the CCCCC, and was delivered by a team of trainers from INSMET. The training course was	
		held at the University of the West Indies (UWI) Mona Campus in Jamaica from January 6 –	
		17, 2014. The target audience for the course included climate change experts, technicians	
		and practitioners from public and private sectors as well as non-governmental organizations.	
		Key organizations and groups represented at the course included Antigua & Barbuda's	
		Ministry of Agriculture; the Bahamas Meteorological Service; the National Climate Change	
		Office of the Dominican Republic; Haiti's Ministry of Environment, and post-graduate	
		students of UWI's St. Augustine Campus. Belize was represented at the training by	
		personnel from the National Emergency Management Organization (NEMO) as well as	
		CZMAI's Data Analyst, Ms. Maritza Canto. According to Ms. Canto this training provided	
		many methodologies for the application of basic climate based models that can be used to	
		enhance climate adaptation planning for the various productive sectors in Belize"	
		(Government of Belize 2014, online).	
7. Specialised	2. The organisation	The Centre "provides climate change-related policy advice and guidelines to the Caribbean	$\overline{\checkmark}$
advisory	provides	Community (CARICOM) Member States through the CARICOM Secretariat" (CCCCC 2015c,	
services	specialised	online).	

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SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
	climate change adaptation- related advice to	"Delivering Transformational Change" was "prepared by the Caribbean Community Climate Change Centre in response to a request from the CARICOM Heads of Government to	
	Member Countries and/or other stakeholders.	produce an Implementation Plan to guide the delivery of the 'Regional Framework to Achieving Development Resilient to Climate Change'" (CCCCC 2012).	
		4. Outcome Effectiveness	
-	-	-	

Appendix 4.4: Application of FAROCCCA to SPC

	RATING SYSTEM			
×	No			
<b>♦</b>	To some extent			
V	Yes			
(NE)	No evidence			
	Perceptual indicator or indicator not rated in this			
	paper			

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		Input Effectiveness	
1. Goals	•	SPC was established by the Canberra Agreement, in 1947. The goal of the agreement does not include environmental considerations, but rather, is to promote the "economic and social welfare and advancement of the peoples of the South Pacific region" (SPC 1947, p. 1).	×
		The word 'environment' appears twice in the text, as recommendations for the newly established commission to undertake studies on the "relationship between plants and their environment including soils and climate" (SPC 1947, p. 11), and on the "human body's response to changes of climate and environment" (SPC 1947, p. 12).	
		The Tahiti Nui Declaration is not a legal document, but presents a regularly updated description of SPC's major policies and implementation mechanisms. The declaration includes adaptation to climate change, and disaster risk reduction as cross-cutting themes (SPC 2011e, article 19).	
		*Colonial organisation; established by AUS, NZ, USA, UK, France, Holland etc before PICTs were self-governing*	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	Climate change     adaptation is a     current goal of the	The SPC 2007-2012 corporate plan includes climate change (both adaptation and mitigation) as a cross-cutting programme commitment (SPC 2007, p. 11).	Ø
	organisation.	SPC's 2013-2015 Corporate Plan mentions adaptation to climate change under a number of sectoral headings, including fisheries (p. 21), Water and Sanitation (p. 15), and as an example of SPC's multisectoral capabilities (p. 9 & 11) (SPC 2013).	
		SPC also published an internal engagement strategy for climate change in 2011 (SPC 2011d), which includes the word 'adaptation' 56 times, and the word 'mitigation' 15 times.	
	3. The current strategic plan contains specific climate change adaptation objectives.	The SPC Corporate Plan (2013-2015) strategic goals mentions adaptation under water and sanitation: "Number of PICTs water sectors with increased engagement and contribution to national efforts in disaster risk reduction, response, and climate change adaptation" (SPC 2013, p. 15). The baseline for this was to be reported to the Committee of Representatives of Governments and Administrations in 2013, with 22 PICTS to have achieved the goal by 2015.	♦
	•	There are also three goals related to climate change and DRR in the corporate plan.	
	<ol> <li>There is no other regional organisation with similar climate</li> </ol>	"SPC has taken a lead role in creating a joint regional platform on climate change and disaster risk management. It has also led the development of the Strategy for Climate and Disaster Resilient Development in the Pacific (SRDP)" (SPC 2014g, p. 35).	X
	change adaptation goals.	SPREP "is the convener and coordinator of the PCCR [Pacific Climate Change Roundtable] in collaborations with CROP and key development partners" (SPREP 2014g).	
		"SPC acknowledges the lead role of SPREP in climate change advocacy, regional and international coordination, regional climate change policy and frameworks, and its own work in climate change mitigation and adaptation. We also acknowledge the role of PIFS in providing political leadership and	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		in coordinating climate change financing initiatives for the region, the critical role of USP in climate change education and research, and the roles of FFA and PPA in climate change adaptation and mitigation. For its part, SPC covers the broadest range of sectors that are impacted by climate change in the region. It has in-house capacity to assist members to develop and implement climate change adaptation responses in all these sectors it works in at the national level. SPC also undertakes scientific research on the impacts of climate change on natural ecosystems, and has strong capacity to analyse the socio-cultural and economic impacts of climate change on the region. SPC is directly involved in implementing climate change adaptation work on the ground at national level in all PICTs across all the sectors it works in, as well as in undertaking advanced scientific research in agriculture, fisheries and forestry" (SPC 2011d, p13).	
2. Govern ance and leaders hip	<ol> <li>The Board         provides visionary             leadership and             strategic direction.     </li> </ol>		
	<ol> <li>The organisation evaluates organisational performance at least annually.</li> </ol>	SPC's 2013-15 corporate plan seeks to increase the focus on results, targeting an increase from one or two to seven "divisions with results-focused strategic plans and annual reports using clear results frameworks" (SPC 2013, p. 17).	<b>♦</b>
	3. Executive management (can also include members of the Board/Governing Body) decision-	"SPC's governing body The Conference of the Pacific Community, which is held every two years, is the governing body of SPC with each member entitled to <u>one vote</u> on decisions. However, debates are usually resolved in the <u>Pacific way by consensus</u> . The Committee of Representatives of Governments and Administrations (CRGA) meets annually, and in the years that the conference does not meet, is empowered to make decisions on the governance of SPC" (emphasis added) (SPC	N

SUB- COMPONENT		INDICATOR	EVIDENCE	RATING
		making is done by	2011c). The Conference is attended by heads and deputy heads of state, ministers, ambassadors,	
		consensus or	high commissioners, and senior officials from members states (SPC 2010b, p. 64).	
		majority vote.		
	4.	Executive	SPC's Director-General serves a two year term, and while the details of the evaluation are not	Ø
		management staff	published, SPC's 2009 annual report notes the unanimous agreement to reappoint the DG under the	
		(can also include	heading "Evaluation of the Director-General's Performance" (SPC 2010b, p. 70).	
		members of the		
		Board/Governing	"Dr Colin Tukuitonga took up the post of Director-General of SPC 23 January 2014. He will be based	
		Body) are qualified	at SPC's headquarters in Noumea, New Caledonia. Dr Tukuitonga, who is from Niue, has a first-hand	
		and/or equipped	appreciation of the development challenges facing the Pacific and more than 27 years' experience	
		to achieve the	working in a variety of roles, including as a clinician, academic, programme manager and consultant	
		goals of the	adviser. Recent roles as Director of SPC's Public Health Division since December 2012 and earlier as a	
		organisation.	member of the team that carried out an independent external review of SPC in the first half of 2012	
			have given him a sound understanding of SPC's operations. He has worked in Niue, Fiji, New Zealand	
			and Switzerland in senior roles including Chief Executive Officer of the Ministry of Pacific Island	
			Affairs of the New Zealand Government; Associate Professor of Public Health and Head of Pacific and	
			International Health at the University of Auckland; Director of Public Health in the New Zealand	
			Ministry of Health; and Head of Surveillance and Prevention of Chronic Diseases with the World	
			Health Organization in Geneva" (SPC 2014e, online).	
	5.	Executive		
		management staff		
		disclose potential		
		conflicts of		
		interest.		
	6.	O .	As part of striving for organisational excellence, SPC carries out staff satisfaction surveys (SPC 2013,	<b>♦</b>
		attracts, retains	p. 18).	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	and develops talent.	Cameron Diver-Deputy D-G  "The Secretariat of the Pacific Community (SPC) has appointed Cameron Diver as the new Deputy Director-General, Operations and Management, on Tuesday, 01 October 2013. Diver has citizenship of both New Zealand and France and is bilingual in English and French and also fluent in Spanish. He has a master's degree in law and a diploma of advanced studies in public law and legal anthropology from the University of New Caledonia, and bachelor degrees in arts and law from the University of Auckland. Diver takes up the position previously filled by Richard Mann. This role provides leadership for SPC's corporate services comprising human resources, finance and budget and administration; programme support services comprising interpretation and translation, publication, library and information services, and information and communication technology; and SPC's decentralised offices – the north Pacific regional office in Pohnpei and the Honiara country office. The position of SPC Deputy Director-General is a three-year appointment renewable for a further three years based on performance" (emphasis added) (PINA 2013, online).	
		<ul> <li>Scott Pontifex, Education Database Specialist (Development Statistics)</li> <li>November 11-Present: "Scott is a [sic] Education Management Information Systems (EMIS) database Specialist at the Secretariat of the Pacific Community. He worked previously as a programmer in Geographical Information Systems (GIS) also at SPC for 9 years in Noumea, New Caledonia. Prior to this he worked in the Ministry of Education, Demographic and Statistical Analysis Unit in New Zealand from 2000 to 2002".</li> <li>April 2002-November 2011: "Worked as a programmer in Geographical Information Systems (GIS) at the Secretariat of the Pacific Community. Developed a custom GIS software for 14 Pacific Island Countries" (Pontifex 2015, online).</li> </ul>	

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SUB- COMPONENT		INDICATOR	EVIDENCE	RATING
			"Nevertheless, SPC is still experiencing structural difficulties in attracting and retaining the best possible talent for development in the Pacific Islands. These difficulties include salaries for internationally recruited staff (discussed in Paper 7.5) and the lack of job security resulting from the requirement to hire staff only on fixed-term contracts. The maximum length of contract for all employees is three years, and for staff recruited internationally, their positions must be advertised after six years (this is known as the six-year rule)" (SPC 2014d, p. 1).	
	7.	Leaders create a dynamic organisational culture, making the organisation a desirable place to work.		
3. Resour ces	1.	There are staff members exclusively dedicated to climate change adaptation.	"The climate change support team will work closely with SPC divisional managers and programme staff to help identify areas where existing programmes can be expanded to incorporate activities that will meet the climate change-related needs of members" (SPC 2011d, p. 10).  SPC has eleven staff in their "climate change unit (USAID Project and EU-GCCA Project)" ( <a href="http://gsd.spc.int/staff">http://gsd.spc.int/staff</a> ), however none of these positions are listed as exclusively focussed on adaptation.	<b>*</b>
	2.	Staff are qualified and have experience in climate change adaptation.	SPC's climate change strategy includes having "[d]edicated internal climate change policy and advisory support services in place to meet organisational needs" (SPC 2011d, p. 11).  In August 2015, Sylvie Goyet was "appointed to the position of SPC Director, Environmental Sustainability and Climate Change based in Noumea, New Caledonia. Sylvie comes with 20-years of experience in environmental programme development and implementation, with special expertise in	<b>*</b>

**RATING** 

**EVIDENCE** 

coastal and marine issues, and a general background in management and strategic planning. Sylvie's main duties will be coordinating the broad portfolio of projects that SPC is carrying out in the area of

SUB-

**COMPONENT** 

**INDICATOR** 

experience in

(SPC 2011d, p. 19).

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	project/program management.	"Mr Amos is a citizen of Vanuatu. He has a master's degree in Biological Science from the University of Auckland and a Bachelor's Degree in Zoology from Otago University, New Zealand. Mr Amos is fluent in English, Bislama, Melanesian Pidgin and has a working knowledge of French.	
		Mr Amos is currently the Director of the Department of Fisheries in Vanuatu, a position he has held over a period of 12 years from September 1997 to December 2006 and again from September 2010 till now. From January 2007 to March 2010 Mr Amos was Director of Fisheries Management at the Forum Fisheries Agency in Honiara.	
		Mr Amos has worked both regionally and nationally and has a strong grasp of the economic, political and cultural dynamics of the region as well as the fisheries' regional and country policies, infrastructure and programmes. He has a strong background in the development and management of fisheries policies and their implementation at both national and regional levels. He has a very strong grasp of the key issues in fisheries in particular as seen from the perspectives of SPC's island members.	
		Mr Amos' previous role as a member of FFA's management team will augur well in further strengthening the relationship between SPC and FFA in the fisheries sector which in turn will further strengthen the collective effort of both organisations to serve our mutual membership better" (Emphasis added) (SPC 2014a).	
	<ol> <li>Staff participate in ongoing training programs.</li> </ol>	"Training and technical skills development will be provided as appropriate to ensure that staff have the most up-to-date information on how climate change will impact on their specific areas of focus" (SPC 2011d, p. 10).	V
		"The Teamwork and Innovation category was won by ICT Suva for introducing new initiatives alongside ongoing staff training and technical support" (SPTO 2015).	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		"Two technical staff of SPC (Cenon and Vinesh) are currently in Vava'u, Tonga to undertake Agroforestry training. 32 participants with 50% women are in attendence. Topics covered in this training: Climate Change, Food Security, best agricultural practices, nursery development and management, Beekeeping, Aquaculture, Post-harvest and composting" (SPC Facebook post).	
		"Monday 16 September 2013, Secretariat of the Pacific Community (SPC), Suva, Fiji: Fifty-nine staff members of the Secretariat of the Pacific (SPC) staff have completed disaster risk management (DRM) and climate change training in recent months" (SPC - Geoscience Division 2013a).	
		It is worth noting that DRM and climate change adaptation in the Pacific are becoming integrated into single policies (JNAPs). For example, in Tonga, "There were unanimous endorsements [from Cabinet Ministers, CEOs of line ministries, civil society representatives and NGOs] for a joint plan due to the close linkages of climate change impacts and disaster risk management but also to avoid duplication of efforts and maximize the use of the limited resources in Tonga" (The Kingdom of Tonga 2010, p. 28).	
	5. Staff performance is appraised (formally or informally) at least annually.	"A new Human Resources Adviser (Remuneration and Human Resources Information System) was recruited in July. His initial priorities are <u>reviewing the annual performance appraisal process</u> , undertaking a critical review of the remuneration system for internationally recruited staff in liaison with the other agencies making up CROP (Council of Regional Organisations in the Pacific), and consolidating the HR Online information system introduced in 2014" (emphasis added) (SPC 2014d, p. 2).	Ø
	<ol><li>The organisation has untied funding.</li></ol>	In the SPC 2009 annual accounts, over 45% of their funding (USD\$40,565,916) was from member contributions, including from Australia, France, New Zealand and the USA (SPC 2010a, p. 44).	Ø

SUB- COMPONENT	I	INDICATOR	EVIDENCE	RATING
			SPC's 2013-15 corporate plan notes that there is a risk of SPC not meeting its core funding target, which could "have a significant impact on the ability of SPC to meet the organisational development targets of this [2013-15] plan" (SPC 2013, p. 12).	
		The organisation has funds exclusively dedicated to climate change adaptation.	SPC accounts show funds spent on coastal climate change projects, climate change mainstreaming, "Climate impact on C.F. / O.F." (SPC 2010a), climate change science and adaptation planning, and on assessing vulnerability and adaptation (SPC 2014f).	Ø
	-	External funding to the organisation has increased over the past 5 years.	"At present, one CFP unit equals 1 USD. A 'CFP unit' is simply 100 CFP (French Pacific Franc, the local currency in French Polynesia, New Caledonia, and Wallis and Futuna and the operating currency of the Secretariat)" (SPC 2004, p. 10).  Non-member contributions in:  2008: CFP Units 9,624,693 2009: CFP Units 4,417,144 (SPC 2010a, p. 7). 2012: CFP Units 27,062,691 2013: CFP Units 51,012,811 (SPC 2014f, p. 13).	V
		The organisation has multiple funding sources.	In 2013 SPC received contributions from 26 members states totalling around USD\$58.5Million, and contributions from 34 non-member organisations totalling around USD\$59Million (SPC 2014f, pp. 47-48).	Ø
		The organisation has financial reserves.	"The secretariat's reserves as per the approved 2014 accounts are currently 6.5 million CFP units. Taking into account the 605,000 units used to balance the 2015 revised budget, as per CRGA 43's authorisation, and the secretariat's request to use 600,000 CFP units to fund priorities and initiatives under the new Strategic Plan, the level of reserves in 2016 would be 5.3 million CFP units in total.	Ø

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		This is well above the 4.1 million unit figure presented at CRGA 44 and the 2015 CRGA target of five	
		million CFP units. This is due both to the contribution made by the secretariat under the 2016 budget	
		and to surplus funds in reserves identified after a thorough review. Reserves would thus have been strengthened by 1.2 million CFP units in total over the course of FY 2015 and into FY 2016" (SPC	
		2015a, p. 10).	
		SPC's 2013 Annual Report notes an operating surplus of CFP Units 1,959,955 (SPC 2014f, p. 18).	
		Also, as at December 31 2013 SPC had a little over 102 Million CFP units in assets, including 70 Million in cash (SPC 2014f, p. 11).	
		SPC has a core budget separate from its project funds, and the secretariat is proactively trying to build financial reserves (SPC 2014f, p. 3).	
		SPC seeks to have a balanced budget each year: "The revised 2014 budget is a balanced budget, totalling 110.401 million CFP units (core funding 30.841 million CFP units, project funding 79.560	
		million CFP units) in income and expenditure. Overall, the 2014 revised budget reflects an increase of	
		15.044 million or 15.8 % compared to the original budget of 95.3574 million CFP units.	
		4. The Secretariat proposes a balanced 2015 budget of 110.951 million CFP units, comprising the core	
		budget of 32.97 million CFP units and project funding of 77.981 million CFP units" (SPC 2014b, p. 1).	
	11. The organisation		
	has sufficient		
	technological		
	resources (e.g.		
	intellectual		

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SUB- COMPONENT		INDICATOR	EVIDENCE	RATING
CONTI ONENT		property rights,		
		patents, copyright,		
		software licences		
		etc.) to carry out		
		its climate change		
		adaptation		
		mandate.		
4. Structu	1.	There is a low		
re,		degree of		
system		hierarchy (i.e. few		
s and		hierarchical		
process		levels).		
es				
	2.	The organisation		
		has a human		
		resource		
		management		
		system that		
		supports the		
		shaping of		
		organisational		
		culture and staff		
		recruitment,		
		training,		
		development and		
		retention.		

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SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	<ol><li>There is a financial management</li></ol>	"SPC policies in these areas [accounting, auditing, internal control and procurement] were benchmarked against international standards such as the 'International Standards for Auditing' and	V
	system that meets	'International Financial Reporting Standards'" (SPC 2011a, p. 5).	
	International		
	Financial		
	Reporting		
	Standards (IFRS)		
	or its equivalent.		
	4. The organisation		
	applies risk		
	management		
	principles in its		
	decision-making		
	processes.		
	5. The organisation		
	has a centralised,		
	user-friendly		
	internal data		
	management		
	system.		
	6. The organisation		
	has a user-friendly		
	project/program		
	management		
	system (e.g. that		
	supports staff to		

SUB- COMPONENT		INDICATOR	EVIDENCE	RATING
		identify, schedule and track		
		resources etc.).		
	7.	There are		
		mechanisms that		
		support vertical		
		and horizontal		
		communication.		
	8.	There are internal		
		dispute resolution		
		protocols.		
5. Researc	1.	The organisation	SPC's 2013-15 corporate plan specifies research as one of the ways through which SPC supports	$\overline{\mathbf{A}}$
h and		has plans and	development in the Pacific. Their Public Health Division has two programmes, one of which is	
collabo		policies that	"Research, Evidence and Information Programme" (SPC 2013, p. 9).	
ration		support research.		
capacit			"Over the past 25 years, SOPAC 'The Commission' has developed the Science, Technology and	
У			Resources (the SOPAC/STAR) Network (STAR); an independent network to support the delivery by	
			the international scientific community of new and appropriate science and technology to the region.	
			In this, the international community of scientists and technologists provide a substantial cost-free	
			service to the region worth tens of millions of dollars annually through inter-alia the costs of field	
			surveys, including those for the deployment of large research vessels, institutional laboratory and library costs and salaries.	
			The establishment of SOPAC "The Division" of SPC enables the STAR to associate itself with the SPC.	
			SPC voiced 'unequivocal' commitment to providing the opportunity to STAR to continue and expand	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		its role and encourages STAR to hold its regular meetings together with the Heads of Applied Geoscience and Technology Meeting (the Technical Advisory Group for the new SOPAC 'The Division'). STAR, being an independent, informal and entirely voluntary group of scientists will be encouraged through its Chair to consider the SOPAC merger with SPC as an opportunity for becoming a premier scientific conference of the Pacific Basin. The expansion of the role of STAR under the auspices of SPC will be pursued to extend its benefits to an expanded Membership and to include other major areas within SPC's mandate, for example forestry, agriculture and fisheries" (SPC and SOPAC 2010, p. 16).	
	There are     organisational     funds allocated for     research.	SPC's 2013 annual report includes five lines in the notes to the financial statements that refer to projects that include research components (SPC 2014f, pp. 25-38).  The SOPAC Divisional 2013 Proposed Work Plan and Budget shows proposed expenditure on fieldwork, studies and surveys for as:  2013: CFP Units 4,600,700 2014: CFP Units: 4,429,400 2015: CFP Units: 3,777,500 (SPC and SOPAC 2012, p. 2).	V
	3. The organisation has equipment, expertise and/or resources (e.g. access to journal articles etc.) for research.	In 2009 SPC chartered a vessel to undertake tuna tagging for research purposes. Over two two month cruises 7,786 tuna were tagged (SPC 2010b, p. 26).  Stable isotope analysis, along with data from analysis of fish stomach contents (tuna, sharks, billfish and other species) carried out at SPC, and data on fat content, allows researchers to determine predator—prey relationships in the oceanic ecosystem and provides a better understanding of species interactions and cascading effects of fishing activities and climate variations. This information will be used in future stock assessments (SPC 2010b, p. 27).	V

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SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		Pasha Carruthers is a Climate Change Adviser at SPC. The summary of her background is, "A Conservation Professional with emphasis on global change and sustainable development issues. Experienced in international negotiations, participatory approaches, project proposal development, implementation and management, with communities, municipal, state and national governments and intergovernmental organisations. Post-graduate qualification for, and implementation of, climate change vulnerability & adaptation assessments and pilot activities. Trained in ecology, coastal management, archaeology, mapping procedures, analysis and reporting of scientific data. Twelve years with Government of the Cook Islands National Environment Service in a variety of roles related to MEAs implementation, culminating with three years as Island Futures Division Manager. Four years with SPC as Technical Adviser to the European Union Funded Global Climate Change Alliance Pacific Small Islands States Project, particularly water security and health activities" (Carruthers 2015).	
	4. The organisation's current strategic plan (or a similar document) outlines plans for collaboration with multiple stakeholders on adaptation-related initiatives.	"SPC works with other CROP agencies to address the effects of climate change and reduce the risks from disasters in the Pacific Islands" (SPC 2013, p. 11).  While not focused specifically on adaptation, as part of its results framework SPC is "Fostering action-focused collaboration with worthy partners for more effective service delivery" (emphasis added) (SPC 2013, p. 17).	Ø

2. Project/Program Effectiveness – GCCA:PSiS

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
1. Needs and goals	1. The project documents contain evidence that the project/program fills an existing need with relation to climate change adaptation.	The Global Climate Change Alliance is an EU funded program to support and strengthen dialogue, cooperation and exchange of experiences among Least Developed Countries (LDCs) and Small Island Developing States (SIDS). The project acknowledges the many particular development challenges faced by SIDS, which are exacerbated by climate change and climate variability (SPC 2012, p. 1).  For the fragile and exposed low lying atolls of the Cook Islands (Manihiki, Rakahanga, Penrhyn, Pukapuka, Palmerston) climate change is an ever present reality. Manihiki atoll is a classic example of the vulnerability of these atolls to extreme weather events. The atoll had always been considered to lie outside of the main cyclone belt. However, it was devastated by Cyclone Martin in 1997. A number of waves swept across the whole island and 19 people lost their lives" (SPC 2011b, p. 2).  "Planning for adaptation to the impacts of climate change requires an ability to monitor changes at local levels within the atoll communities. This allows for planning adaptive management for pearl farming and inshore fisheries.  The communities on these atolls are small, and livelihood activities are a family affair, with men, women and children all participating in different aspects of the activity, be it pearl farming, fishing, or small scale agriculture. Thus the entire populations will directly benefit from an ecosystem which is more resilient to the impacts of climate change.  Urgent action is required to build resilience to climate change, and this project opportunity is very timely. The project will result in the remote communities on these atolls being in a much better	
		position to survive in this vulnerable environment and in the face of changes to their climate" (SPC 2011b, p. 2).	

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SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	2. The project/program's adaptation components could be considered 'transformational' (i.e. the project/program focusses on "larger, more profound system changes" and requires a "paradigm shift" in the way it is framed and implemented).	In the Cook Islands, "at least one new effective communication tool will be prepared collaboratively and used widely in the communities during the duration of the project" (SPC and Government of the Cook Islands 2012, p. 15).	
	3. Climate change adaptation is a goal of the project/program.	"SPC and the European Union have agreed to support the governments of nine small Pacific countries, namely Cook Islands, Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Niue, Palau, Tonga and Tuvalu, in their efforts to tackle the adverse effects of climate change. This initiative is called the Global Climate Change Alliance: Pacific Small Island States" (emphasis added) (SPC 2012, p. 1).  The purpose of the project is to, "To promote a long term/strategic approach to adaptation planning and budgets and to pave the way towards more effective and coordinated aid delivery modalities at national and at regional level" (emphasis added) (GCCA and SPC 2012, p. 1).	Ø

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SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	4. The project/program's goals reflect the long-range impacts of climate change.	national and at regional level" (emphasis added) (GCCA and SPC 2012, p. 1).	ত
	5. The project/program's objectives relating to climate change adaptation are specific, measurable, achievable, realistic and timebound (SMART).		◆
	6. Member Countrie were involved in developing the climate change adaptation components of the project/program.	The logframe for the GCCA:PSIS project includes as an indicator that, "[t]en new activities that address country requests for climate change adaptation [will be] undertaken in an effective and sustainable manner" (GCCA and SPC 2012, p. 1).  As an example, the Government of the Cook Islands is one of the authors of the Cook Islands Project Design Document (Emphasis added) (SPC and Government of the Cook Islands 2012).  "In Nauru delays were experienced with obtaining Government endorsement of the Project Design Document. This was discussed at the Fourth Steering Committee Meeting in June 2014, when Nauru	Ø

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		decided to move the project focus from household water conservation measures to community water conservation measures" (SPC 2014c, p. 9).	
2. Scope	1. The project/program addresses multiple climate or climate-induced vulnerabilities (e.g. vulnerability to sea-level rise, increased sea surface and air temperature, changing rainfall patterns etc.).	·	V
	2. The project/program addresses multiple non-climate-induced vulnerabilities (e.g. poverty, deforestation etc.).	The GCCA:PSIS project in the Republic of the Marshall Islands (RMI): "Protecting atoll habitability, land and infrastructure in Ailinglaplap, Marshall Islands" recognises the vulnerabilities detailed in RMI's JNAP, including "1. Sparse and scattered nature of islands and atolls, making communication and transportation to outer islands more difficult [and,] 2. Outbreaks of disease via contamination of water is not uncommon – an issue that is exacerbated by the high population densities of the urban centres" (GCCA <i>et al.</i> 2014, p. 6).  "The government of RMI selected the Woja road and causeway project as the focus for the GCCA: PSIS project, based on an OEPPC vulnerability survey (which included consultation with the local community) indicating the area is undergoing active erosion and which could divide the islands,	V

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		thereby impacting copra production, access to schools and <a href="https://example.com/health-services">health-services</a> for the community" (emphasis added) (GCCA et al. 2014, p. 8).  The logical framework for the Cook Islands project includes, as a key results area, a study of livelihood activities that relate to marine resources, which includes revising the "Existing Pearl Economic Model" (SPC and Government of the Cook Islands 2012, p. 20).	
3. Logic, design and adequa cy	1. The logic/design of the project/program's climate change adaptation components is evidence-based, in the context of SIDS.	"Provision of training in project appraisal and management will help countries identify effective adaptation measures that can be supported by development partners. The design and implementation of climate change adaptation projects in each country is part of this initiative" (SPC 2012, p. 3).  "Marshall Islands (RMI)  The following activities are being supported under the European Union funded GCCA:PSIS project in RMI.  Climate change adaptation project  RMI has chosen to focus its adaptation project on enhancing coastal protection. Over the long term, coastal erosion and inundation threatens many of the country's low-lying atolls, and RMI has identified the need to enhance its ability to design and implement appropriate and sustainable coastal protection measures. The adaptation project under the GCCA:PSIS project focuses on an outer atoll, Aililnglaplap, and the construction of a causeway to maintain access between two islands in an area of coastal erosion.	*

APPENDICES
[A-78]

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		The project is also intended as a blueprint for a best practice guideline for coastal protection projects in future. In addition, it will support national stakeholder dialogue and planning for a building code or similar that can help guide future planning decisions, to reduce risks from climate change and extreme events" (GCCA 2012).	
	2. The project documents contain evidence that the logic/design of the project/program's climate change adaptation components is an effective means to achieve its objectives.	The lessons learnt workshop that was held in September 2015 reports a number of concerns that stakeholders had relating to things such as budget overruns, poor funding allocations, weak coordination and lack of early consultation with community stakeholders and project managers. Things that stakeholders reported positively on included that national, state and local parties worked together to achieve project aims, that there was political support for the projects and that there were tangible outputs that led to direct improvements in livelihoods (GCCA and SPC 2015, pp. 45-47). "The government of RMI selected the Woja road and causeway project as the focus for the GCCA:PSIS project, based on an OEPPC vulnerability survey (which included consultation with the local community) indicating the area is undergoing active erosion and which could divide the islands, thereby impacting copra production, access to schools and health services for the community" (emphasis added) (GCCA et al. 2014, p. 8).	•
		The Cook Islands project began with a review of climate change projects and programs to provide a background for identifying a focus area for this project. This was followed by discussions with country representatives about adaptation needs in the Cook Islands. Finally, prior to preparing a concept note for the project, there were discussions with ministries and line agencies and the Prime Minister's Office, to choose the marine resources sector (SPC and Government of the Cook Islands 2012, p. 12). "This project is consistent with the climate change adaptation needs and priorities for the Cook Islands as identified in the Joint National Action Plan for Climate Change Adaptation and Disaster Risk	

**RATING** 

evaluation and learner's guide)

**EVIDENCE** 

SUB-

**INDICATOR** 

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		<ul> <li>Sub-regional North Pacific climate change and the media training- October 2012 (see the workshop report)</li> <li>Sub-regional North Pacific training on utilising the Pacific Climate Change Portal- February 2013 (see the workshop report)</li> <li>First National Climate Change Dialogue - September 2014 (see the dialogue report)" (emphasis added) (GCCA 2012).</li> </ul>	
	2. The project/program team includes staff members with qualifications and experience in climate change adaptation.	One of the activities for the second key results area is to provide two qualified personnel, employed by the ministry of marine resources (SPC and Government of the Cook Islands 2012, p. 15).  Dr Graham Sem (a lead author of Chapter 16 (Small Islands) of the IPCC's Climate Change 2007: Working Group II: Impacts, Adaptation and Vulnerability, and member of the UNFCCC Secretariat (PNG)) is a member of the project oversight committee.  Pasha Carruthers is a Climate Change Adviser in the Climate Change Unit (USAID Project and EU-GCCA Project) (SPC-SOPAC 2015). The summary of her background is, "A Conservation Professional with emphasis on global change and sustainable development issues. Experienced in international negotiations, participatory approaches, project proposal development, implementation and management, with communities, municipal, state and national governments and intergovernmental organisations. Post-graduate qualification for, and implementation of, climate change vulnerability & adaptation assessments and pilot activities. Trained in ecology, coastal management, archaeology, mapping procedures, analysis and reporting of scientific data. Twelve years with Government of the Cook Islands National Environment Service in a variety of roles related to MEAs implementation, culminating with three years as Island Futures Division Manager. Four years with SPC as Technical Adviser to the European Union Funded Global Climate Change Alliance Pacific Small Islands States Project, particularly water security and health activities" (emphasis added) (Carruthers 2015).	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	3. The project/program team includes staff members with qualifications and experience in project/program management.	Vuki Buadromo is a Project Manager at SPC. Prior to joining SPC she worked for four years at the Pacific Islands Forum Secretariat where she "Managed the implementation an annual grant of USD500,000 which supports a regional scholarship programme available to Forum island countries over four years. Management of the scheme involved monitoring and evaluation of the programme; managing project budgets; servicing committee meetings; liaising with regional stakeholders; and reporting programme outputs to the development partner, Forum member countries and the management committee on an annual basis.  >Managed and coordinated the successful implementation of a multi-year grant (USD 300,000) from the Republic of Korea. The grant was co-implemented by two technical agencies (the Fiji School of Medicine and the Seoul National University Hospital) which supported the successful training of 25 health care workers from the region in primary health care.	<b>☑</b>
		>Managed of the Pacific Islands Development Cooperation Fund – Responsibilities included coordinating CROP project proposals and reports; developing and facilitating agreements between the government of Japan and implementing technical agencies; management/coordination of project funds; monitoring, evaluating and reporting on project implementation; and reporting to the Japan Management Committee on the status of projects and funds on an annual basis.	
		>Management of special funding facilities for Forum member countries (Smaller Islands Development Fund, Forum Secretariat Fellowship Scheme, Short Term Technical Advisory Service)" (emphasis added) (Buadromo 2015).	
		Pasha Carruthers is a Climate Change Adviser in the Climate Change Unit (USAID Project and EU-GCCA Project) (SPC-SOPAC 2015). The summary of her background is, "A Conservation Professional with emphasis on global change and sustainable development issues. Experienced in international	

APPENDICES [A-82]

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		negotiations, participatory approaches, project proposal development, implementation and management, with communities, municipal, state and national governments and intergovernmental organisations".	
	4. The project		
	documents		
	contain evidence		
	that there are		
	sufficient staff		
	members to		
	achieve the		
	project/program		
	objectives.		
	5. The project	"The Woja site was also considered most likely to be financially viable to tackle with the budget	<b>♦</b>
	documents	available under the GCCA:PSIS project" (GCCA 2012, p. 8).	
	contain evidence		
	that there is		
	sufficient funding		
	for the		
	project/program's		
	climate change		
	adaptation		
	components.		
5. Technic	<ol> <li>The project</li> </ol>	"The project was allocated €7.5 Million, for technical assistance, travel, training, national staff, small	×
al	documents	scale infrastructure, equipment, supplies, evaluations missions, regional workshops and meetings"	
efficien	contain evidence	(GCCA and SPC 2012, p. 3).	
су	that the		

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	project/program provides value for money (cost vs. outputs).	"The project documents detail 15 activities focussing on situational understanding, and coordination of efforts both nationally and regionally to address climate change impacts" (GCCA and SPC 2012, pp. 3-4).	
6. Implem entatio n	1. The project/program's climate change adaptation components are implemented, as proposed.	As at 30th June 2014 the project components ranged from 0% to 83% complete, with one component noted as having a change of focus in July 2014 (SPC 2014c, p. 43).  Nauru – project focus adjusted 14 <sup>th</sup> July 2014 (similarity with the Caribbean project)  "In Nauru delays were experienced with obtaining Government endorsement of the Project Design Document. This was discussed at the Fourth Steering Committee Meeting in June 2014, when Nauru decided to move the project focus from household water conservation measures to community water conservation measures" (SPC 2014c, p. 9).  [In the Caribbean, endorsement was received, but not the authority to implement – responsibilities weren't delegated.]	
7. Monito ring and evaluat ion	<ol> <li>The project/program is internally monitored and evaluated.</li> </ol>	The project included a six monthly progress reporting cycle (eg. SPC 2014c). In September 2014 the	Ø
	<ol><li>The project/program is externally</li></ol>	?	(NE)

SUB-

	JB- ONENT	INDICATOR		EVIDENCE	RATING
			monitored and evaluated.		
8.	Sustain	1.			
	ability		sustained outputs		
			from the		
			project/program.		
				3. Output Effectiveness	^
1.	Goal	1.		SPC's 2013-14 program report concludes that their target of "Increased resilience of PICTs to the	<b>♦</b>
	attainm		in the most recent	water-related impacts of climate change and disaster" (SPC 2014g, p. 69) is on track, with the	
	ent		annual report or	relevant PICTs having made contributions towards designing a five year water security program for	
			evaluation that	atoll countries.	
			the climate		
			change	Other targets such as strengthening community ability to respond to climate change and disasters	
			•	have been delayed.	
			objectives of the		
			organisation are		
			being achieved.		
2.	Researc	4.	The organisation	As part of the GCCA-PSIS project, SPC has published country climate change profiles of the nine small	
	h and		produces and/or	Pacific countries (see <a href="http://www.spc.int/en/featured-publications.html">http://www.spc.int/en/featured-publications.html</a> ).	
	knowle		publishes research		
	dge		that is relevant to		
	manag		climate change		
	ement		adaptation at least		
			annually.		
		5.	0	These publications are available on the SPC website ( <a href="http://www.spc.int/en/featured-">http://www.spc.int/en/featured-</a>	$\overline{\checkmark}$
			makes climate	publications.html).	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	change adaptation- relevant research publicly available.		
6. Collabo ration and advoca cy	1. There is evidence that the organisation collaborates with multiple stakeholders to undertake climate change adaptation-related activities.	The GCCA:PSIS project has involvement from SPREP, and is designed to work with national governments of the target countries. As examples, the project documents for the projects in the Cook Islands and the Federated States of Micronesia are co-authored with the respective governments (SPC and Government of the Cook Islands 2012, SPC and Government of the Federated States of Micronesia 2013).	<b>\(\sigma\)</b>
	2. The organisation advocates for political, financial and/or other climate change support for its Member Countries in various fora at different scales.	The following statement from SPC's 2013-15 corporate plan gives some insight into their role advocating on behalf of member countries: "The global development meeting calendar is already set for the next few years and it is important that the Pacific engages strategically in the relevant discussions, decisions and processes. Events that will have significant impacts for PICTs during the plan period include the Joint Global Platform for Disaster Risk Reduction and Climate Change (May 2013); the Preparatory Meeting of the Small Island Developing States Conference – SIDS (2013) followed by the Third International Conference on SIDS to be hosted in the Pacific in 2014; the MDG Summit in 2015; and the Sustainable Development Goals (SDGs) agenda. All these events are central to SPC's core work and SPC will take a technical leadership role in supporting PICTs in these and other areas" (emphasis added) (SPC 2013, p. 27).	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
4. Educati on and training	1. The organisation undertakes climate change adaptation stakeholder and/or public awareness activities.	With support from a number of projects and agencies, including SPC- EU GCCA: PSIS, on "Wednesday 15 October 2014, Kiribati will be joining hands with over 200 million people in over 100 countries around the world to celebrate Global Hand Washing Day with the theme 'Clean Hands Save Lives'. The event will be held in Bairiki Square in South Tarawa from 11am to 3pm in the presence of Secretaries, Diplomats, Heads of UN agencies, members of community and school students" (Office of the President of Kiribati 2015).  "In a timely gesture, two more television stations in the Pacific Island region will soon be airing the Secretariat of the Pacific Community's flagship TV show, The Pacific Way  To view the first four episodes of the show for 2015, see The Pacific Way playlist on YouTube:  • Episode 1: Youth at Work & 20th Anniversary Highlights 3rd SPC Conference: <a href="https://youtu.be/7UtXfJlyE2c">https://youtu.be/7UtXfJlyE2c</a> • Episode 2: Empowering Communities in RMI, Palau & FSM: <a href="https://youtu.be/f Ur9LDoGPE">https://youtu.be/7UtXfJlyE2c</a> • Episode 3: <a href="https://youtu.be/UGtISLXXIOS">National Adaptation Programme of Action to Climate Change (NAPA) in Tuvalu: <a href="https://youtu.be/UGtISLXXIOS">https://youtu.be/UGtISLXXIOS</a> • Episode 4: Building Resilient Communities in Tonga (USAID) &amp; GCCA: PSIS Kiribati Environmental Health Surveillance: <a href="https://youtu.be/AbzMAXhV8H0">https://youtu.be/BDSCA: PSIS Kiribati Environmental Health Surveillance: <a href="https://youtu.be/AbzMAXhV8H0">https://youtu.be/AbzMAXhV8H0</a>" (emphasis added) (SPC 2015b).</a></a>	
	2. The organisation develops and/or implements training programs for stakeholders in issues related to	There are a variety of training resources published on the SPC website. For example a tool for integrating gender concerns into weather and climate hazard assessments (see <a href="http://www.spc.int/images/publications/en/Divisions/CC/Tools.pdf">http://www.spc.int/images/publications/en/Divisions/CC/Tools.pdf</a> ).  From the 20 <sup>th</sup> – 22 <sup>nd</sup> June 2012 the "Secretariat of the Pacific Community (SPC) held a training session on gender and climate change for Fiji officers from government ministries and NGOs. It aimed at	Ø

RATING

		adaptation.	in the context of climate change. According to SPC, understanding the different roles of women, men, youth and children, is critical to reducing vulnerability and enhancing resilience to the impacts of climate change. The workshop aimed to enhance understanding of these differing roles, enabling participants to identify effective interventions for the improved management of limited resources in the face of a changing climate. The workshop was organized by the SPC/German International Development Cooperation (GIZ) programme, Coping with Climate Change in the Pacific" (APAN 2012b).	
APPENDICES [A-88]			"Two members of staff from the tissue culture unit of the Crops Division of Samoa's Ministry of Agriculture and Fisheries (MAF) had a one-week attachment at the end of November at SPC's Centre for Pacific Crops and Trees (CePaCT) in Narere, Fiji. The training was mainly focused on the micropropagation protocols of taro currently developed and optimised by CePaCT" (SPC - Land and Resources Division 2013).	
$\mathbf{S}$	5. Speciali	1. The organisation	There are a variety of training resources published on the SPC website. For example a tool for	<b>♦</b>
	sed	provides	integrating gender concerns into weather and climate hazard assessments (see	
	advisor	specialised climate	http://www.spc.int/images/publications/en/Divisions/CC/Tools.pdf).	
	У	change		
	service	adaptation-related	"Director of SPC's Division of Fisheries, Aquaculture and Marine Ecosystems Mr. Mike Batty believes	
	S	advice to Member	that the: 'SPC/GIZ programme will strength the fisheries sector in PICTs by supporting successful	
		Countries and/or	adaptations of strategies to protect coastal communities from the effects of climate change and	
		other	provide scientific data, modeling [sic] and advice on oceanic fisheries to assist SPC member	
		stakeholders.	governments and regional organisations. The challenges brought about by climate change demand a	
			coordinated response from our region, working under one overarching approach to achieve one	

added) (Solomon Times Online 2011).

**EVIDENCE** 

strengthening participants' understanding of the gender analysis approach so that they could apply it

common goal - the sustained resilience of Pacific Island communities to climate change'" (emphasis

SUB-

COMPONENT

**INDICATOR** 

climate change

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		4. Outcome Effectiveness	
-	-	-	-

Appendix 4.5: Application of FAROCCCA to SPREP

	RATING SYSTEM		
×	No		
<b>♦</b>	To some extent		
V	Yes		
(NE)	No evidence		
	Perceptual indicator or indicator not rated in this		
	paper		

SUB- COMPONENT		INDICATOR	EVIDENCE	RATING
			1. Input Effectiveness	
1. Goals	1.	Climate change adaptation was an initial goal of the organisation.	In the 2,400 word agreement establishing SPREP (SPREP 1993), recognition of the overlaps between people and the environment consists of four uses of the word 'sustainable'. The organisation's original mission statement was "To promote cooperation in the Pacific region and provide assistance in order to protect and improve its environment and to ensure sustainable development for present and future generations" (SPREP 1993: Article 2).	×
	2.	Climate change adaptation is a current goal of the organisation.	SRPEP's 2011-15 Strategic Plan lists climate change as its first strategic priority in (SPREP 2011a, p. 3), with the specified goal under this priority heading being to strengthen member capacities to respond to climate change (SPREP 2011a). "By 2015, all Members will have strengthened capacity to respond to climate change through policy improvement, implementation of practical adaptation measures, enhancing ecosystem resilience to the impacts of climate change, and implementing initiatives aimed at achieving low-carbon development" (emphases added).	Ø
	3.	The current strategic plan contains specific climate change adaptation objectives.	SPREP's 2011-15 Strategic Plan includes 15 climate change targets ranging from "By 2015, all Members can refer to accurate emissions inventories and assessments of their technical needs" (SPREP 2011a, p. 19) to "At least 10 PICT Members have mainstreamed climate change adaptation, including ecosystem based approaches, and risk reduction considerations in their national sustainable development	Ø

SUB- COMPONENT		INDICATOR	EVIDENCE	RATING
			strategies (NSDS) or equivalent and resources have been mobilised for their implementation" (emphasis added) (SPREP 2011a, p. 17).	
			Pacific interpretation of 'mainstreaming' → "Climate change adaptation, including ecosystem-based approaches, is mainstreamed in national and sectoral polices, strategies and plans, and implemented	
			through coordinated institutional arrangements supported by enabling environments at all levels and sectors; adaptation and mitigation activities are integrated to prevent any contrary ('perverse') impacts on ecosystems" (https://www.sprep.org/sprep-meeting/pacific-environment-forum).	
	4.	There is no other regional organisation with similar climate change adaptation goals.	SPC medium term climate change goal: "Capacity to respond to climate change, disasters and emergencies strengthened" (SPC 2013, p. 2).  SPREP climate change goal: "By 2015, all Members will have strengthened capacity to respond to climate change through policy improvement, implementation of practical adaptation measures,	×
		See .	enhancing ecosystem resilience to the impacts of climate change, and implementing initiatives aimed at achieving low-carbon development" (SPREP 2011a, p. 16).	
			The Pacific Centre for Environment and Sustainable Development (PACE-SD) at the University of the South Pacific has the following mission: "To work with all other relevant sections of the university, regional and international organisations and governments to promote environmentally friendly climate change adaptation and sustainable development through innovative and cost-effective approaches" ( <a href="http://www.usp.ac.fj/index.php?id=11354&amp;type=98">http://www.usp.ac.fj/index.php?id=11354&amp;type=98</a> ).	
			*Overlapping missions of SPREP and SPC; SRPEP is environment-focussed—ecosystems resilience (related to original mission; SPC is more disaster-focused, probably working in a comprehensive disaster management framework*	

SUB- COMPONENT		INDICATOR	EVIDENCE	RATING
2. Governance	1.	The Board provides		
and		visionary leadership		
leadership		and strategic		
		direction.		
	2.	The organisation	"Progress towards the goals and outcomes of the [2011 – 2015] Strategic Plan will be evaluated against	V
		evaluates	key performance indicators annually through the performance monitoring and evaluation report to	
		organisational performance at least	SPREP Meetings: these indicators will be monitoring tool for tracking progress" (SPREP 2011a, p. 33).	
		annually.	Progress will be evaluated annually against key performance indicators through the performance	
		•	monitoring and evaluation report to SPREP Meetings; these indicators will be used as a monitoring tool	
			to measure the impact of the Secretariat's work and track progress (SPREP 2011a, p. 6).	
			SPREP publishes annual monitoring and evaluation reports that are based on the approved work plan	
			and budget for the year and question, with this stemming from the strategic plan. For example, the	
			target, "At least 10 PICT Members have mainstreamed climate change adaptation, including ecosystem	
			based approaches, and risk reduction considerations in their national sustainable development	
			strategies (NSDS) or equivalent and resources have been mobilised for their implementation" appears	
			first in SPREP's 2011-2015 strategic plan (SPREP 2011a, p. 17), and later in the 2014 Approved Work	
			Programme and Budget (SPREP 2013c, p. 11), with a budget of US\$1,022,325 attached, and finally in	
			the 2014 Performance and Monitoring Evaluation Report for 2014 (SPREP 2015e, p. 8) with an actual	
			expenditure of US \$909,486 and with the target 100% complete.	
	3.	Executive	The SPREP Meeting Rules of Procedure specify that decision-making will be achieved through	$\square$
		management (can	consensus to ensure each member has a voice (SPREP 1995, Rule 11).	
		also include members		
		of the		
		Board/Governing		

SUB- COMPONENT		INDICATOR	EVIDENCE	RATING
		Body) decision- making is done by consensus or majority vote.		
	4.	Executive management staff (can also include members of the Board/Governing Body) are qualified and/or equipped to achieve the goals of the organisation.	DG requires a Master's degree in management/development/environment or a related field. Also 15 years' significant and relevant experience at senior executive level. Extensive high level experience and competency negotiating with governments and donors and development partners in and outside the region (SPREP 2015b).  DG (2009-2015) education:  "The Australian National University  Bachelor of Science (Forestry), Forest Management, Ecology and Environmental Management 1974 – 1977	
			University of Canberra  Post Graduate Diploma in Resource Management, Natural Resource Policy and Management  1981 – 1982  Harvard Business School Executive Education  Executive Development Programme, Advanced Executive Management and Leadership  2000 – Present"  DG (2009-2015) experience:	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		"Manager, Natural Resource Management Division	
		National Parks and Wildlife Service, New South Wales, Australia	
		March 1983 – October 1990 (7 years 8 months)	
		Head, Programme on Protected Areas	
		IUCN	
		May 1993 – October 2009 (16 years 6 months)	
		CEO (Director General)	
		Secretariat of the Pacific Regional Environment Programme	
		October 2009 – Present (6 years 2 months)"	
		Prior to SPREP, David worked with IUCN, based in Switzerland, as Head of their Protected Areas	
		Programme. His roles included leading IUCN's work on protected areas and on the UNESCO World	
		Heritage Convention. He served as Secretary General of the IVth IUCN World Parks Congress (WPC),	
		held in Durban, South Africa in 2003. David also worked at the Senior Executive level in the New South	
		Wales (Australia) National Parks and Wildlife Service, and worked with the Tasmanian and New Zealand	
		Governments in the forestry sector. David has also worked as a consultant with the World Bank and	
		Asian Development Bank and has represented SPREP, IUCN and other organisations, at the highest	
		level, on many International Boards and Committees" (Sheppard 2015).	
	5. Executive		
	management staff		
	disclose potential		
	conflicts of interest.		

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	The organisation     attracts, retains and     develops talent.	"The Human Resources team take the lead on ensuring we recruit and retain the highest quality of staff at SPREP. They look after our staff from recruitment and induction through to repatriation and are also in charge of HR policies, performance and professional development" (SPREP 2014a, p. 53).	<b>♦</b>
	7. Leaders create a dynamic organisational culture, making the organisation a desirable place to work.		
3. Resources	There are staff     members exclusively     dedicated to climate     change adaptation.	The personnel list on the SPREP website includes an adaptation adviser and an adaptation specialist, in addition to a number of adaptation project managers and financial personnel (SPREP 2014c). The SPREP organisational structure includes two staff and one consultant working directly in climate change adaptation, along with four consultants working on the "Pilot Programme for Climate Change Resilience Project" (SPREP 2015c, p. 5).  "SPREP has a current staff of more than 90, with at least 20 devoted to working full time on climate related issues. SPREP is a regional center [sic] of excellence and the lead Pacific organization in climate change work. It has implemented over 100 donor - assisted regional projects in climate change and environmental management, in general, and in CCA and DRR mainstreaming, in particular" (emphasis added) (SPREP 2015a, p. 1).	Ø
	Staff are qualified and have experience in climate change adaptation.	The job description for the Pacific Ecosystem Based Adaptation Project Manager requires an individual with seven years' experience managing projects related to ecosystem based adaptation for climate change adaptation (SPREP 2014d).	Ø

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		"Dr. Netatua Pelesikoti is the Director of SPREP's Climate Change Division. She is called Neta by those	
		who know her, and is well known throughout the Pacific region having had over 20 years' worth of	
		experience in climate change, coastal management and disaster risk management.	
		She began as an environmental technical officer in Tonga and then progressed to working on policy and	
		management at the national level including monitoring and evaluation, training, and project management.	
		She was also an advisor at the Secretariat of the Pacific Applied Geoscience Commission (SOPAC). Often	
		described as the 'Queen of Disaster Risk Management' in the Pacific region, Neta is well received and	
		welcomed by many Pacific island communities who have spent time with her in their work field.	
		Dr. Pelesikoti is a coastal ecologist by profession. She did her first degree at the University of the South	
		Pacific in geography and economics; she completed her Masters in Coastal Management in the	
		Netherlands and finished her PhD in Australia in coastal monitoring focusing on the coastal water quality, coral reef and seagrass.	
		Now, Dr. Pelesikoti is staking her claim in the international region having attended the UN Climate	
		Change Negotiations since 2010 and with her role as a Leading Author in Chapter 29 [Small Islands] of	
		the 5th IPCC Assessment Report" (emphasis added) (SPREP 2012b).	
	3. Staff are qualified and	The job description for the Pacific Ecosystem Based Adaptation Project Manager requires an individual	
	have experience in	with seven years' experience managing projects related to ecosystem based adaptation for climate	
	project/program	change adaptation (SPREP 2014d).	
	management.		
		"For over 10 years, Paul Anderson has been working with communities, civil society, national	
		governments and regional organizations to build capacity in natural resource management, climate	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		change adaption, conservation and marine resource management in the Pacific Islands and the United	
		States. He specializes in environmental monitoring, capacity building (field implementation, monitoring,	
		surveying, GIS/GPS, coastal change analysis), bilateral and multilateral environmental reporting,	
		Geographical Information Systems database management, data acquisition, cartography and <u>project management</u> .	
		Paul had developed prioritization products for conservation sites in Pacific Islands Countries and	
		Territories, strengthened national capacity to use of latest global positioning systems (GPS) as well as	
		capacity building and resource management facilitation. Developed the Pacific Islands mangrove monitoring manual.	
		He has worked with the disaster management offices in Samoa and Vanuatu and Red Cross to prioritize	
		and deliver aid after the 2009 Samoa Tsunami, Cyclone Evan in 2012 and Cyclone Pam in 2014. Paul	
		conducted the post disaster needs assessment for the environment sector for the world bank after all 3 disasters" (emphasis added) (Anderson 2015).	
		"Various	
		PROJECT EXPERIENCE	
		January 2006 – Present (9 years 11 months)	
		2015-current	
		Global Environment Facility Capacity Building for MEAs Project	
		Targets 14 SPREP member countries	
		Project Manager	
		2014-2015	

Daniel Gilfillan –
 tation and health in Southeast Asia: What do regional organi

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		Capacity Building and Project Analysis, Civil Society Support Program, Samoa	
		Ecosystem Based Adaptation Coordinator	
		2012-2014	
		International Climate Change Adaptation Initiative, AusAid	
		Tonga, Samoa, Vanuatu, Kiribati	
		Development Coordinator	
		2013-current	
		Pacific Ocean Ecosystem Analysis Project (PACIOCIA)	
		21 Pacific Island Countries and Territories (PICTs)	
		Pacific Island Hub Project Manager	
		2012-current African Caribbean Pacific Multilateral Environmental Agreements (ACPMEAs) Capacity	
		Building Project	
		14 PICs and Timor Leste	
		SPREP Protected Areas Observatory Adviser (BIOPAMA)	
		2012-current Biodiversity and Protected Areas Management Programme (BIOPAMA)	
		21 Pacific Island Countries and Territories (PICTs)	
		SPREP MESCAL Coordinator	
		2010 -2012 Mangrove Ecosystems for Climate Change Adaptation & Livelihoods (MESCAL) Project	
		Fiji, Solomon Islands, Samoa, Vanuatu, Tonga	
		Marine Conservation Planning Adviser	
		2008-2010 Biodiversity and Ecosystem Management Marine Program	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		21 Pacific Island Countries and Territories (PICTs)	
		GIS User Group Coordinator	
		2006-2008 American Samoa Department of Commerce" (Anderson 2015).	
		"Dr. Netatua Pelesikoti is the Director of SPREP's Climate Change Division. She is called Neta by those	
		who know her, and is well known throughout the Pacific region having had <u>over 20 years' worth of</u>	
		experience in climate change, coastal management and disaster risk management.	
		She began as an environmental technical officer in Tonga and then progressed to working on policy and	
		management at the national level including monitoring and evaluation, training, and project	
		<u>management</u> .	
		She was also an advisor at the Secretariat of the Pacific Applied Geoscience Commission (SOPAC). Often	
		described as the 'Queen of Disaster Risk Management' in the Pacific region, Neta is well received and	
		welcomed by many Pacific island communities who have spent time with her in their work field.	
		Dr. Pelesikoti is a coastal ecologist by profession. She did her first degree at the University of the South	
		Pacific in geography and economics; she completed her Masters in Coastal Management in the	
		Netherlands and finished her PhD in Australia in coastal monitoring focusing on the coastal water	
		quality, coral reef and seagrass.	
		Now, Dr. Pelesikoti is staking her claim in the international region having attended the UN Climate	
		Change Negotiations since 2010 and with her role as a Leading Author in Chapter 29 [Small Islands] of	
		the 5th IPCC Assessment Report" (emphasis added) (SPREP, 2012).	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
COMIT CIVEIVI	4. Staff participate in ongoing training programs.	"In 2014, SPREP continued to support continuous learning, professional development and growth for all staff. In February, an off-site, learning and team-building workshop for all staff under the broad theme of 'Learning Together, Leading Together' was facilitated by Dr Harold Hillman and colleagues from Sigmoid Curve Consulting. The programme included targeted training for senior staff and middle management" (SPREP 2014a, p. 57).  "During the year [2013], 25 staff members were supported under the learning and development programme. This initiative is part of the Performance Development System which identifies staff training and capacity building needs" (SPREP 2013b, p. 43).  "Led by SPREP, these [adaptation fund proposal writing] training activities were supported by the Asia Pacific Adaptation Network (APAN), the Ministry of Environment, Japan through their Institute for Global Environmental Strategies (IGES), SPC through their European Union Global Climate Change Alliance, PIFS, and UNEP through the CTCN. Additionally, in-kind support through the provision of resource people was provided through the Adaptation Fund and Green Climate Fund secretariats,	V
		respectively. The training helped participants to become familiar with the full Adaptation Fund proposal development cycle and to respond to each of the key components of the application process" (SPREP 2014a, p. 36).	
	5. Staff performance is appraised (formally or informally) at least annually.	"Following completion of performance reviews in early 2014, 96% of staff had been assessed as performing at or above the expected level. Four staff members received the Director General's Excellence Award in recognition of their exemplary and exceptional performance" (SPREP 2014a, p. 57).  "In 2013, SPREP established the Director General's Excellence Award to recognise exemplary and exceptional performance by staff. In March, three members of staff were recipients of this inaugural award" (SPREP 2013b, p. 43).	Ø

SUB- COMPONENT		INDICATOR	EVIDENCE	RATING
	6.	The organisation has	SPREP is heavily reliant on project-based funding (Hay et al. 2014, p. iii). At the same time, SPREP's	<b>♦</b>
		untied funding.	dependence on project-based funding has been decreasing (Hay et al. 2014, p. 24)	
	7.	The organisation has	The report for the 25 <sup>th</sup> SPREP Meeting notes that SRPEP is now an accredited 'Regional Implementation	V
		funds exclusively	Entity (RIE)' for the Adaptation Fund established under the Kyoto Protocol and that this accreditation	
		dedicated to climate	would improve "SPREP's ability to assist countries in developing and submitting climate change	
		change adaptation.	adaptation proposals for funding consideration by the AF" (SPREP 2014e, p. 6).	
			SPREP's Climate Change Division assists members to develop their capacity to respond to climate	
			change, and over the period 2011-2013 this Division is allocated 55% of SPREP's technical budget (Hay et al. 2014, p. 8 & 27).	
			2012 Work Plan and Budget shows dedicated funding for "implementing adaptation measures" (SPREP 2011c, p. 10).	
	8.	External funding to the organisation has	Donor contributions in 2011 totalled US\$10,647,044 (SPREP 2012a, p. 44).	Ø
		increased over the past 5 years.	Donor contributions in 2014 totalled US\$15,817,618 (SPREP 2014a, p. 58).	
		. ,	*General trend is an increase but there has been fluctuations in contributions—2013 figures were higher than 2014*	
	9.	The organisation has multiple funding sources.	SRPEP's 2011 Annual Report details around \$880,000 in member contributions from 19 members, and around \$10,647,000 from 34 donors (SPREP 2012a, p. 44).	Ø
	10	. The organisation has	On the 1st January 2014 SPREP's balance of funds was US\$5,737,925, and on the 31st December 2014 it	×
		financial reserves.	was US\$4,735,411. During the year SPREP received US\$15,817,618 in donor contributions (SPREP	
			2014a, p. 58).	

SUB- COMPONENT	INDICATOR			EVIDE	ENCE	RATING
		SPREP's 2014 audite	d annual account	ts show the follo	owing:	
		(see overleaf)				
		Туре	31 Dec 2014	31 Dec 2013		
		General Reserve	\$501,425	\$501,425		
		Specific Funds	\$244,452	\$35,133		
		Core Funds	(\$1,238,598)	(\$469,110)		
		Total Reserves	(\$492,631)	\$67,448		
		whole there was no to core budget service the high costs of the number of unexpect SPREP and is being a comprising of Memb	deficit, that this reces in 2014 was of translations (over ed medical fees in ddressed by a Maters and Secretar fees and cost rec	related only to due mainly to the \$300k), 24th in 2014. The issuembership Worliat staff. There is covery mechanis	etion of reserves was that for the organisation as a corporate services and that, "The deficit in relation the high costs of the reviews (in total over \$400k), SPREP Meeting costs (\$255) [sic?], and the cost of a sue of core funding has been a long running issue for king Group (which will meet again on 17th July) is also an internal working group addressing the sams as other income for the core budget apart 9).	
	<ol><li>The organisation has sufficient</li></ol>					
	technological					

SUB- COMPONENT		INDICATOR	EVIDENCE	RATING
		resources (e.g.		
		intellectual property		
		rights, patents,		
		copyright, software		
		licences etc.) to carry		
		out its climate change		
		adaptation mandate.		
4. Structure,	1.	There is a low degree		
systems and		of hierarchy (i.e. few		
processes		hierarchical levels).		
	2.	The organisation has a		
		human resource		
		management system		
		that supports the		
		shaping of		
		organisational culture		
		and staff recruitment,		
		training, development		
		and retention.		
	3.	There is a financial	"In accordance with International Financial Reporting Standards and best practice, an unqualified audit	
		management system	was undertaken of 2014 financial statements, a testament to our high standards of financial	
		that meets	management" (SPREP 2014a, p.56).	
		International Financial		
		Reporting Standards	*There is evidence that the audit was conducted → published as part of 2014 Annual Report*	
		(IFRS) or its		
		equivalent.		

SUB- COMPONENT		INDICATOR	EVIDENCE	RATING
	4.	The organisation	"The Secretariat will work with Members to develop annual progress reports that will contribute to a	
		applies risk	mid-term consultative review in 2013. Such reports will be drawn on again when the Plan is updated or	
		management	replaced in 2015, and a risk management framework will be applied to the Plan" (SPREP 2011a, p. 6).	
		principles in its		
		decision-making		
		processes.		
	5.	The organisation has a		
		centralised, user-		
		friendly internal data		
		management system.		
	6.	The organisation has a		
		user-friendly		
		project/program		
		management system		
		(e.g. that supports		
		staff to identify,		
		schedule and track		
		resources etc.).		
	7.	There are		
		mechanisms that		
		support vertical and		
		horizontal		
		communication.		
	8.	There are internal		
		dispute resolution		
		protocols.		

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
5. Research and collaboration capacity	The organisation has plans and policies that support research.	SPREP's action plan "promoting and developing programmes, including research programmes, to protect the atmosphere and terrestrial, freshwater, coastal and marine ecosystems and species, while ensuring ecologically sustainable utilisation of resources" (SPREP 1993, Article 2.2.c).	Ø
	There are organisational funds allocated for research.	The Climate Change Strategy aims to "Enhance and build capacity for conducting applied research, fostering meteorological, climatological and oceanic observation and monitoring programmes to improve understanding, awareness, and applications of targeted responses to climate change and related disaster risk reduction". \$1,104,000 has been allocated/estimated for this activity(SPREP 2011c, pp. 12-13).	Ø
		SPREP's 2014 Work Programme and Approved Budget has listed as a climate change goal, "C1.2.1c:  Adequate regional meteorological and oceanographic services are provided to ensure access to quality and timely weather and ocean state information" (emphasis added) (SPREP 2013c, pp. 16-17), with US\$458,596 allocated towards achieving the goal.	
		Two of the 2014 activities associated with this goal are:	
		"6. PMDP [Pacific Meteorological Desk Partnership] <u>preparing at least one regional pre-COP briefing paper</u> for SPREP UNFCCC preparations for PICs	
		7. PMDP assisting efforts on climate change projection work in-country" (emphasis added) (SPREP 2013c, p. 17).	
		SPREP's 2014 Work Programme and Approved Budget includes US\$99,587 for the PI- Global Ocean Observing System Coordinator, (PI-GOOS). In the Pacific, PI-GOOS is designed "to assist sustainable development by facilitating the establishment and implementation of coastal and open ocean observing programmes, and in helping to improve uptake and use of the data, information and	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		products being generated. Implementation of the PI-GOOS programme is primarily through capacity	
		building at the local and regional level, and via the delivery of useful observation related products to	
		relevant national level Government departments and other national partners" (SPREP 2011b, p. 4).	
		"The position of Pacific Islands – Global Ocean Observing System Coordinator (PIGOOSC) addresses the	
		following Key Result Areas:	
		Development and management of the GOOS programme	
		Facilitation of the PIGOOS Advisory Committee	
		Capacity building programmes Advisory and reporting	
		Publication" (SPREP 2011b, p. 6).	
		"Following the untimely passing of Mr Lui Bell in 2012, who was working at the time as SPREP's Marine	
		Species Adviser, a scholarship fund was established by SPREP to honour his memory. Through the fund,	
		a grant of up to USD 20,000 is awarded to assist a young person from the Pacific to undertake a course	
		of post-graduate study that will contribute to those issues about which Lui was most passionate – the	
		conservation of the threatened and migratory species of the Pacific islands" (SPREP 2014a, p. 22).	
		In 2014, the Secretariat's publishing function oversaw a significant increase in the number of	
		publications produced. In the period from January – December 2014, SPREP produced 50 new	
		publications, not including meeting reports or promotional materials" (SPREP 2014a, p. 55).	
	3. The organisation has	In March 2010 four elements of SOPAC (The Pacific Islands Applied Geoscience Commission) were	Ø
	equipment, expertise	transferred to SPREP (SPREP and SOPAC 2010). One of the elements transferred was The Pacific Islands	
	and/or resources (e.g.	Global Ocean Observing System (PI-GOOS), which monitors the Pacific Ocean using "a range of	
	access to journal	environmental sensors, <u>from satellites</u> which can monitor the sea surface from high in space, <u>to teams</u>	
		of people who monitor coral reef health while diving and snorkelling, and even to highly sophisticated	

SUB- COMPONENT		INDICATOR	EVIDENCE	RATING
		articles etc.) for	robots which sink into the ocean depth before climbing back to the surface every 10 days" (emphasis	
		research.	added) (SPREP 2015f).	
	4.	The organisation's	"For the Secretariat it [achieving the 2015 targets and outcomes] means delivering quality service to	$\overline{\mathbf{V}}$
		current strategic plan	Members by expanding the funding base of the organisation, implementing responsive change	
		(or a similar	management to ensure that programmes are relevant and viable, and working in partnership with	
		document) outlines	other organisations and stakeholders that support SPREP's strategic priorities" (emphasis added)	
		plans for	(SPREP 2011a, p. 2).	
		collaboration with		
		multiple stakeholders	PIFACC document recognises the limited technical resources and the need to collaborate.	
		on adaptation-related		
		initiatives.	Expected outcomes in Framework document.	
			Component 2: Project/Program Effectiveness - PACC	<u>'</u>
1. Needs and	1.	The project	"Prior to the PACC programme, efforts to try and reduce vulnerability were piecemeal and were not	V
goals		documents contain	seen to be contributing to an overall strengthening of adaptive capacity across the region. Business-as-	
		evidence that the	usual development did not integrate climate change adaptation at national (state) or community	
		project/program fills	(municipal) level planning, resulting in infrastructure being easily damaged by climate variability and	
		an existing need with	extreme events. The PACC programme was developed to lay the groundwork for a more coordinated	
		relation to climate	and integrated approach to ensure that vulnerabilities are reduced and that development activities	
		change adaptation.	achieve their social, economic and ecological goals. The programme addresses Pacific island priority	
			actions for climate change adaptation by: (1) demonstrating practical 'on the ground' measures; (2)	
			promoting climate-sensitive national policy; (3) strengthening community or municipality coping	
			capacity; and (4) building resilience at the level of national and state economies" (SPREP 2013a, p. 3).	
	2.	The project/program's	"The MTR [PACC Mid Term Review] considers it important to understand what 'baseline assessment'	
		adaptation	means. If the current 'development baseline' is used , with adaptation funding covering 'additionality' ,	
		components could be	then the implicit assumption being made is that all current development activities are inherently	
	1	considered	adaptive and simply need additional input to allow for climate change. In essence this is saying that we	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	'transformational' (i.e.	simply need to keep doing more of what we are currently doing to account for climate change. Such an	
	the project/program	approach leaves no room for any critical evaluation of whether current activities may in fact be	
	focusses on "larger,	maladaptive, under present and/or future conditions. Consideration of climate change therefore needs	
	more profound	critical assessment of current (baseline) and future conditions, covering climatic, environmental, social,	
	system changes" and	and economic factors. Such an approach forms the key elements of a vulnerability and adaptation	
	requires a 'paradigm	assessment, which at the very least should be used for screening the full range of issues and potential	
	shift' in the way it is	adaptation options at the project development stage" (emphasis added) (Hunnam et al. 2012, p. 34).	
	framed and		
	implemented).	"Beyond sustainability, the programme is promoting replication and up-scaling of best practices and	
		innovations, within countries and across countries as appropriate. Some promising adaptation solutions	
		are already being replicated, for example the solar water purifiers in Nauru which have moved beyond	
		the pilot communities" (SPREP 2013a, p. 38).	
		"The PACC programme is the largest climate change adaptation initiative in the region, with activities in	
		14 Pacific island countries and territories. The programme is building a coordinated approach to the	
		climate change challenge" (SPREP 2013a, p. 40).	
		"The [PACC] 3-D mapping tool is an aid to engaging communities and enabling their participation in	
		decision making – in the Vanuatu project, this has been used in deciding on whether to relocate roads	
		and villages further inland" (SPREP 2013a, p. 37).	
	3. Climate change	"The [PACC] programme is building an integrated and coordinated approach to the climate change	$\square$
	adaptation is a goal of	challenge through three main components: <u>practical demonstrations of adaptation measures</u> , driving	
	the project/program.	the mainstreaming of climate risks into national development planning and activities, and sharing	
		knowledge in order to build adaptive capacity" (emphasis added) (SPREP 2013a, p. 2).	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		Demonstration plots (significant livelihoods considerations); coastal protection→FSM: 7 km or roads, culverts raised; Vanuatu→relocated roads, air strips	
	<ol> <li>The project/program's goals reflect the long- range impacts of climate change.</li> </ol>	"Building capacity and knowledge to plan ahead and better cope with climate-related risk will therefore have immediate benefits, as well as contributing to longer term coping strategies for climate change" (SPREP 2013a, p. 3).	Ø
		"Mainstreaming efforts are also beginning to reap rewards, as countries move towards integrating climate into their policies and planning" (SPREP 2013a, p. 2).	
		"One aim of the PACC project is to lay foundations for successful adaptation in the region" (SPREP 2013a, p. 37).	
	5. The project/program's objectives relating to climate change adaptation are specific, measurable, achievable, realistic and time-bound (SMART).	Example: "By the end of the project, the National coastal, crop production and water sector Management Plan, Sustainable Development Plan, National Risk Management Plan, and at least two (2) Provincial /Risk management Plans include climate change risk and adaptation measures for the coastal, crop production and water sector in all 13 PACC countries" (emphasis added) (UNDP and SPREP 2008, p. 87).	◆
	6. Member Countries were involved in developing the climate change adaptation components of the project/program.	"The National Climate Change Teams or National Advisory Committee on Climate Change already exists within each of the participating countries. In the PDBB [???] Phase of PACC, the NCCCT [National Climate Change Country Team] have been used to determine the priorities for adaptation implementation within each country. However, given that PACC is focused on implementing adaptation activities in pilot sites of each country it will be important for the membership to include:	Ø

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		<ul> <li>Representatives of civil society organisations and relevant NGOs, particularly working within communities where the project is set;</li> <li>Representatives of island/community/village, local-level, and provincial Governments" (UNDP and SPREP 2008, p. 112)</li> </ul>	
2. Scope	1. The project/program addresses multiple climate or climate-induced vulnerabilities (e.g. vulnerability to sealevel rise, increased sea surface and air temperature, changing rainfall patterns etc.).	<ul> <li>"The three outcomes that the project is striving to achieve are:</li> <li>Policy changes to deliver immediate vulnerability-reduction benefits in the context of emerging climate risks are defined in all PACC countries ('mainstreaming').</li> <li>Demonstration measures to reduce vulnerability in coastal areas (Cook Islands, Federated States of Micronesia, Samoa and Vanuatu), food production (Fiji, Papua New Guinea, Palau and Solomon Islands) and water management (in Marshall Islands, Nauru, Niue, Tonga, Tokelau and Tuvalu) are implemented in selected communities ('demonstrations').</li> <li>Capacity to plan for and respond to changes in climate-related risks are improved ('knowledge')" (SPREP 2013a, p. 4).</li> <li>"Sea level rise alone, with no changes in climate variability, would increase the risk of flooding and inundation on the low-lying atolls. However, in recent years changes in climate variability in Ontong Java have been observed. Dry seasons have expanded into wet seasons, as experienced in the 2011 El Niño and La Niña events. An increase in the frequency and intensity of extreme rainfall events is likely to create flooding and waterlogging problems. Waterlogging would impact on crops, for example sweet potato tuber formation. Despite the projection that the incidence of drought will decrease, the influence of the ENSO cycle on the occurrence of severe drought must be acknowledged" (SPREP 2015d, p. 5).</li> </ul>	V
	2. The project/program	"At the national and community level, the demonstration measures will contribute to building the	Ø
	addresses multiple non-climate-induced	resilience of communities to climate related risks, improving livelihoods and alleviating poverty, which is a key priority for national governments" (UNDP and SPREP 2008, p. 27).	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	vulnerabilities (e.g. poverty, deforestation etc.).	Project addresses population growth, limited sources of income and low soil fertility (SPREP 2015d, p. 5).	
3. Logic, design and adequacy	1. The logic/design of the project/program's climate change adaptation components is evidence-based, in the context of SIDS.	"Pacific island countries are already experiencing the impacts of climate change. The potential magnitude of the problem threatens the very existence of some Pacific island states, and the achievement of sustainable development and Millennium Development Goals. However, vulnerabilities and risks associated with climate change are not currently being addressed in any systematic way. Climate change risks and opportunities are not reflected in national and community level planning and governance processes. Individual, institutional and systemic capacity is not targeted towards strategic interventions. Demonstrations of adaptation pilots in key development sectors have not been implemented, and as a consequence few are replicated and scaled-up. The PACC Project aims to significantly improve the effectiveness of the response to climate change in the Pacific. The project will improve technical capacities to support appropriate adaptation centric policies, demonstrate cost-effective adaptation techniques in key sectors, and promote regional cooperation. It is designed to lay the framework for effective and efficient future investment on climate change adaptation in the Pacific" (UNDP and SPREP 2008, p. 1).	Ø
	2. The project documents contain evidence that the logic/design of the project/program's climate change adaptation components is an effective means to achieve its objectives.	Effectiveness ratings in PACC Demonstration Guide → Introduce new farming systems, suitable salt resistant crops=Medium; CC awareness=Low; environment and resource management training for community=Medium; relocation plan=Low → no discussion of effectiveness ratings (SPREP 2015d, p. 14).  The MTR notes that results "have been mixed; some of the individual exercises have been organised and completed thoroughly, and have produced interesting findings. The CBA work stands out in this regard. Other support exercises and training have not worked well; guides produced have not been useful or applicable in the PACC countries. The MTR considers that overall the regional support work has been only marginally satisfactory; it has not been efficient or cost-effective in enabling the country	•

SUB- COMPONENT		INDICATOR	EVIDENCE	RATING
			projects to produce better results. The support work program should have been less ambitious, which would have helped to improve the RPMU's efficiency of delivery. It is not useful for example, to be developing and introducing new guidance materials (Mainstreaming, CBA) in the fourth year of a 5-year project. Throughout the project the sequence of the support work has been poorly scheduled, and has not been provided on demand or in a useful timeframe for the country project teams. The MTR considers that the particular problem has been the lack of an overall coherent strategy for the support helped to improve the RPMU's efficiency of delivery. It is not useful for example, to be developing and introducing new guidance materials (Mainstreaming, CBA) in the fourth year of a 5 - year project. Throughout the project the sequence of the support work has been poorly scheduled, and has not been provided on demand or in a useful timeframe for the country project teams. The MTR considers that the particular problem has been the lack of an overall coherent strategy for the support work; it has not been aligned to a planning framework at country or regional levels. Tools have been applied out of sequence, without a clear understanding of what they are supposed to be achieving, and in some cases are inappropriate to the context. Underlying these issue s is a lack of focus on the core concern of climate adaptation and resilience" (Hunnam <i>et al.</i> 2012, pp. 10-11).	
4. Resources	1.	Staff members are assigned exclusively to the project/program.	"A full-time Regional Project Manager (RPM) for PACC will be, funded by the project and based as a contracted staff member at SPREP" (UNDP and SPREP 2008, p. 67).  *RPM Taito Nakalevu hired; resigned in February 2014 (SPREP 2014b).	Ø
	2.	The project/program team includes staff members with qualifications and experience in climate change adaptation.	"The PMO will be established and located in SPREP as part of its Pacific Futures Programme will be responsible for the overall project operation and financial management Regional and international experts will be contracted to support the PMO as and when needed to undertake various project activities" (UNDP and SPREP 2008, p. 67).  "The RPM [Regional Project Manager] shall have the following basic required qualifications and expertise:	<b>*</b>

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		<ul> <li>Advanced university degree (at least MSc. or equivalent) in geography, environmental science or other field relevant to the project;</li> <li>Extensive knowledge and experience with the climate change, adaptation and development issues of the PICs;</li> <li>Proven track record of technical and managerial experience of an adaptation implementation</li> </ul>	
		"Taito Nakalevu is the Project Manager for the Pacific Adaptation to Climate Change Project. Originally from Fiji, he obtained his Bachelor and Master of Arts Degrees from the University of the South Pacific, Fiji. Taito started his career as a high school teacher in Fiji and moved on to a European Union funded Programme called the 'Pacific Regional Agriculture Programme' (PRAP) as a Graduate Research Assistant, a project that was executed by the University of the South Pacific and later, the Secretariat of the Pacific Community (SPC). In this position, he worked very closely with the Fiji-German Forestry and Agroforestry Project carrying out agroforestry research in the hinterlands of Fiji. In 1999, he joined the Ministry of Agriculture, Land Resource Planning and ALTA as Senior Research Officer, Land Use Planning, for the Central/Eastern Division" (Nakavelu 2015).	
		There is a gap in Taito Nakavelu's history, however in December 2005 he was working for SPREP as a climate change adaptation officer (UNEP 2005), and appears to have worked in climate change adaptation since then.	
	The project/program team includes staff members with  gualifications and	undertake various project activities" (UNDP and SPREP 2008, p. 67).	<b>♦</b>
	qualifications and experience in	"The RPM [Regional Project Manager] shall have the following basic required qualifications and expertise:	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	project/program management.	<ul> <li>Proven track-record of management experience with GEF- and UNDP-funded projects or similar regional/multi-country projects in small island developing countries;</li> <li>Demonstrated experience in project leadership and management;</li> <li>Ability to manage the work of consultants/sub-contractors</li> <li>Proven ability to work as part of an interdisciplinary and/or multi-cultural team</li> <li>Ability to meet project deadlines; and an ability to live and work within Pacific island communities;</li> <li>Minimum of 5 years of working experience in the area relevant to the project" (UNDP and SPREP 2008, pp. 102-3).</li> </ul>	
		"Taito Nakalevu is the Project Manager for the Pacific Adaptation to Climate Change Project. Originally from Fiji, he obtained his Bachelor and Master of Arts Degrees from the University of the South Pacific, Fiji. Taito started his career as a high school teacher in Fiji and moved on to a European Union funded Programme called the 'Pacific Regional Agriculture Programme' (PRAP) as a Graduate Research Assistant, a project that was executed by the University of the South Pacific and later, the Secretariat of the Pacific Community (SPC). In this position, he worked very closely with the Fiji-German Forestry and Agroforestry Project carrying out agroforestry research in the hinterlands of Fiji. In 1999, he joined the Ministry of Agriculture, Land Resource Planning and ALTA as Senior Research Officer, Land Use Planning, for the Central/Eastern Division" (Nakavelu 2015).	
		There is a gap in Taito Nakavelu's history, however in December 2005 he was working for SPREP as a climate change adaptation officer (UNEP 2005).	
		Peniamina Leavai works "for a regional organization (SPREP) in the Pacific region, as an Adaptation Planning Officer for the Pacific Adaptation to Climate Change (PACC) Project. His expertise is on more than ten years of experience in climate change adaptation in Samoa and the pacific region. With	

SUB- COMPONENT		INDICATOR	EVIDENCE	RATING
			emphasis on water resource management, integrated coastal zone management, food security & food	
			production; and emerging issues of climate change and gender, and cc and human rights. Mr. Leavai's	
			background is on environmental science, earth science, Pacific Island geography and geology,	
			environmental management and sustainable development. BSc (USP, Fiji), MSc (Tongji-IESD UNEP,	
			Shanghai China), PRINCE2 Foundation" (emphasis added) (Leavai 2015).	
	4.	The project		
		documents contain		
		evidence that there		
		are sufficient staff		
		members to achieve		
		the project/program		
		objectives.		
	5.	The project	The PACC project was intended to run from 2008 to 2012, however implementation did not begin until	×
		documents contain	2009 and the end date was shifted to 2013, and then to 2014. Additional funding for the project was	
		evidence that there is	made available in mid-2011 (Hunnam et al. 2012).	
		sufficient funding for		
		the project/program's		
		climate change		
		adaptation		
		components.		
5. Technical	1.	The project	"The MTR [PACC Mid Term Review] considers that overall the regional support work has been only	×
efficiency		documents contain	marginally satisfactory; it has not been efficient or cost - effective in enabling the country projects to	
		evidence that the	produce better results" (emphasis added) (Hunnam et al. 2012, p. 10).	
		project/program		
		provides value for		

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	money (cost vs. outputs).		
6. Implementation	1. The project/program's climate change adaptation components are implemented, as proposed.	Project completion report not yet available. The mid-term report, (SPREP 2013a), shows implementation of adaptation strategies as intended.  Talking about some of the implementation challenges, the PACC Project Manager, Taito Nakavelu said, "We've come up against lack of expertise in various areas, for example with mainstreaming and in some technical fields. But we've worked through on a case-by-case basis and found some good solutions. We've brought in regional partners and consultants when needed, and developed guidance materials and training processes tailored to country needs. In an ideal situation projects follow a cycle of planning, implementation and monitoring, but because of the complex nature of the PACC programme this has not been always possible. We have had to adjust and adapt to make things work. But this is part of the learning process we are all going through" (SPREP 2013a, p. 39).  A year earlier than this statement, in the 2012 mid-term review of PACC, commissioned by the UNDP, independent consultants described the project in a more critical manner, "The MTR notes that results have been mixed; some of the individual exercises have been organised and completed thoroughly, and have produced interesting findings. The CBA work stands out in this regard. Other support exercises and training have not worked well; guides produced have not been useful or applicable in the PACC countries. The MTR considers that overall the regional support work has been only marginally satisfactory; it has not been efficient or cost - effective in enabling the country projects to produce better results" (Hunnam et al. 2012, p. 10).	◆
7. Monitoring and evaluation	The project/program     is internally     monitored and     evaluated.	The PACC project documents include nine pages detailing the monitoring and evaluation plan and budget. This plan is to be executed by the project team with additional support (UNDP and SPREP 2008, pp. 70-78).	Ø

SUB- COMPONENT		INDICATOR	EVIDENCE	RATING
			There are published internal progress reports (eg. GEF et al. 2010).	
			"Project monitoring was difficult because of the remoteness of Ontong Java and limited	
			communications. The PACC PMU initially planned to visit every three months but bad weather and	
			changes to the shipping schedule often meant these trips had to be cancelled. Therefore the PACC	
			team nominated the lead farmer from permaculture plot 1 to provide monitoring information to the	
			PACC PMU in Honiara" (SPREP 2015d, p. 21).	
	2.	The project/program	The project design documents specify that the mid-term and final evaluations will be conducted by	V
		is externally	independent external evaluators (UNDP and SPREP 2008, p. 76).	
		monitored and		
		evaluated.	Mid-term review conducted externally-89pp document (Hunnam et al. 2012).	
			Dr Gavin Kenny → "I worked as part of a team of three to complete a mid-term evaluation of the PACC	
			project, under contract to UNDP. This was a very challenging assignment with the size, geographic	
			extent, and many challenges with the project. My principal role was to review the project in countries	
			that had chosen an agricultural focus for PACC, which required visits to Fiji, Papua New Guinea and	
			Solomon Islands. I also contributed to evaluation of the coastal project in Samoa" (Earth Limited n.d.,	
			online).	
8. Sustainability	1.	There are sustained		
		outputs from the		
		project/program.		
			COMPONENT 3: Output Effectiveness	
1. Goal	1.	There is evidence in	SPREP publishes annual monitoring and evaluation reports that are based on the approved work plan	<b>♦</b>
attainment		the most recent	and budget for the year and question, with this stemming from the strategic plan. For example, the	
		annual report or	target, "At least 10 PICT Members have mainstreamed climate change adaptation, including ecosystem	
		evaluation that the	based approaches, and risk reduction considerations in their national sustainable development	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	climate change adaptation-related objectives of the organisation are being achieved.	strategies (NSDS) or equivalent and resources have been mobilised for their implementation" appears first in SPREP's 2011-2015 strategic plan (SPREP 2011a, p. 17), and later in the 2014 Approved Work Programme and Budget (SPREP 2013c, p. 11), with a budget of US\$1,022,325 attached, and finally in the 2014 Performance and Monitoring Evaluation Report for 2014 (SPREP 2015e, p. 8) with an actual expenditure of US\$909,486 and with the target 100% complete.	
		"CC 1.3.1 By 2015, there is a significant increase in resources for adaptation: more funding disbursed and projects implemented" (emphasis added) (SPREP 2015e, p. 12), was 80% complete in December 2014.	
		CC 2.1.2 By 2011 a climate change portal developed; at least five targeted awareness programmes and communication strategies developed and delivered to raise the level of awareness and facilitate information exchange for key sectors (SPREP 2015e, p. 14), 90% complete in December 2014.	
2. Research and knowledge management	1. The organisation produces and/or publishes research that is relevant to climate change adaptation at least annually.	"In 2014, the Secretariat's publishing function oversaw a significant increase in the number of publications produced. In the period from January – December 2014, SPREP produced 50 new publications, not including meeting reports or promotional materials" (SPREP 2014a, p. 55). E.g. PACC Demonstration Guide: Piloting climate change adaptation in food production and food security on lowlying atolls of Solomon Islands (PTR19) (June 2015).	Ø
	2. The organisation makes climate change adaptation-relevant research publicly available.	"the number of publications produced is reflected in the bi-annual distribution of resources to depository libraries around the region and abroad, with hard copy distribution increasing from 7 to 32 in the twelve month period" (SPREP 2014a, p. 55).	Ø

SUB- COMPONENT		INDICATOR	EVIDENCE	RATING
			"In the Pacific region, SPREP's Pacific Climate Change Portal (PCCP) is a key online hub for information	
			related to climate change. The website is updated on a daily basis, ensuring that the information it	
			houses is always relevant and up-to-date" (SPREP 2014a, p. 35). The PCCP is publicly available.	
3. Collaboration	1.	There is evidence that	"The PCCR [SPREP led Pacific Climate Change Roundtable] coordinates climate change dialogue and	<b>V</b>
and advocacy		the organisation	networking in the region and facilitates links between global, regional, national and community	
		collaborates with	stakeholders. This coordination role directly supports the monitoring and reporting on progress made	
		multiple stakeholders	in the Pacific Islands Framework for Action on Climate Change (PIFACC). It is also a valuable forum for	
		to undertake climate	sharing lessons learnt and reporting on the progress of initiatives such as the PCCP [Pacific Climate	
		change adaptation-	Change Portal] – an online repository of information on climate change in the Pacific region" (SPREP	
		related activities.	2013b, p. 22). Biannual meeting. Last held on May 12-14, 2015.	
	2.	The organisation	"In November, SPREP was accredited as a Regional Implementing Entity under the Kyoto Protocol	$\overline{\checkmark}$
		advocates for	Adaptation Fund of the United Nations Framework Convention for Climate Change (UNFCCC). This	
		political, financial	milestone accreditation, making SPREP one of only three such Regional Implementing Entities in the	
		and/or other climate	world, means that we will be better able to support our Pacific members to access financing from the	
		change support for its	Adaptation Fund. Critically, it enables us to provide technical support and 'lessons learned' to SPREP	
		Member Countries in	members who are seeking national accreditation themselves" (SPREP 2013b, p. 22).	
		various fora at		
		different scales.		
4. Education	1.	The organisation	One of SPREP's 2013 publications is the children's story, "Aia botumwaka ma aia kakamwakuri ataei!	$\overline{\checkmark}$
and training		undertakes climate	The Children Take Action: A Climate Change Story" (SPREP 2013b, p. 48).	
		change adaptation		
		stakeholder and/or	Details	
		public awareness	Published on 07 October 2015	
		activities.		
			Tweet	

SUB- COMPONENT		INDICATOR	EVIDENCE	RATING
			The Secretariat of the Pacific Regional Environment Programme (SPREP) joined the 'Race Against Time' competition as part of the Annual International Alo Paopao Festival, an outrigger event, in Samoa with Director-General Mr David Sheppard coming third in the celebrity event.	
			PTPP1Mr. David Sheppard, Director-General of SPREP in the 'Race Against Time'	
	2.	The organisation develops and/or	"Mr. Sheppard along with Mr Peniamina Leavai of the Pacific Adaptation to Climate Change Project and Mr. David Moverley the Invasive Species Adviser of SPREP joined local celebrities in Samoa that competed in the race, paddling a traditional canoe in the Apia harbor as part of the 'Pole to Paris'. This is a public awareness campaign ahead of the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC COP21) in Paris, France at the end of the year. Climate Change (UNFCCC COP21) in Paris, France at the end of the year" (SPREP 2015h, online).  In 2013, SPREP conducted training for the Samoan Government's "Ministry of Natural Resources and Environment (MNRE) to enable staff to undertake regular coastal erosion monitoring at Vaiula beach	Ø
		implements training programs for stakeholders in issues related to climate change adaptation.	resort at Tafatafa, Samoa. This training is one part of the Samoa coastal ecosystem-based adaptation project, funded through the Australian Government" (SPREP 2013b, p. 10).	
5. Specialised advisory services	1.	The organisation provides specialised climate change adaptation-related advice to Member Countries and/or other stakeholders.	The "Pacific Programme on Climate Resilience with the World Bank will enable SPREP to enhance technical support and advice to Pacific countries on climate change" (SPREP 2013b, p. 3).  "A ground-breaking Letter of Agreement has been signed between the Secretariat of the Pacific Regional Environment Programme (SPREP) and the Republic of the Marshall Islands to support the development of urgently needed climate change adaptation activities. The formal Agreement will see SPREP provide capacity development and technical advisory support to the Marshall Islands to develop	Ø

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		concepts and project proposals for submission to the Adaptation Fund Board. In November 2013, SPREP was accredited as a Regional Implementing Entity (RIE) under the Kyoto Protocol Adaptation Fund of the United Nations Framework Convention for Climate Change (UNFCCC). This milestone accreditation has made SPREP one of only three such RIEs in the world. With the signing of this Agreement, the Marshall Islands has become the second SPREP Member country to officially engage with SPREP in its capacity as RIE" (SPREP 2014f, online).	

## Appendix 5: Appendices to Chapter 6

Appendix 5.1: Original and modified FAROCCCA indicators with qualitative results for ADB and APRF

	RATING SYSTEM				
×	No				
<b>⋄</b>	To some extent				
	Yes				
(NE)	No evidence				
<u>(PI)</u>	Perceptual indicator or indicator not rated in this paper				

	SUB- COMPONENT	CCA INDICATORs (As per (Robinson and Gilfillan 2017)	CCA and HEALTH INDICATORS (FOR SOUTHEAST ASIA)	APRF	ADB
>		COMPONENT 1.	Input Effectiveness		
DDEN	1. Goals	1) Climate change adaptation was an initial goal of the organisation.	1. Health sector adaptation to climate change was an initial goal of the organisation/forum./project	$\overline{\mathbf{V}}$	×
		2) Climate change adaptation is a current goal of the organisation.	2. Health sector adaptation to climate change is a current goal of the organisation/forum/project.	$\triangleright$	V
Ω		3) The current strategic plan contains specific climate change adaptation objectives.	3. Current strategies/plans contain specific climate change adaptation objectives for the health sector.	$\overline{\mathbf{V}}$	×
		4) There is no other regional organisation with similar climate change adaptation goals.	4. There is no other regional organisation/forum/project with similar climate change adaptation goals for the health sector.	×	×
	2. Governance and leadership	1) The Board provides visionary leadership and strategic direction.	1. There is visionary leadership and strategic direction for the organisation/forum/project.	V	×
		2) The organisation evaluates organisational performance at least annually.	2. There is an evaluation of organisational/forum/project performance at least annually conducted by the organisation/forum/project.	<b>�</b>	V
		3) Executive management (can also include members of the Board/Governing Body) decision-making is done by consensus or majority vote.	3. Organisational/forum/project decision-making is done by consensus or majority vote.	V	<b>V</b>

j				1	, ,
		4) Executive management staff (can also include members of the Board/Governing Body) are qualified and/or equipped to achieve the goals of the organisation.	4. Organisational/forum/project personnel are qualified and/or equipped to achieve the goals of the organisation/forum/project.	V	<b>V</b>
		5) Executive management staff disclose potential conflicts of interest.	5. Organisation/forum/project personnel are required to disclose potential conflicts of interest.	(PI)	(PI)
		6) The organisation attracts, retains and develops talent.	6. The organisation/forum/project has mechanisms to attract, retain and develop talent.	$\Diamond$	$\overline{\mathbf{A}}$
		7) Leaders create a dynamic organisational culture, making the organisation a desirable place to work.	7. Leaders create a dynamic organisational/forum/project culture, making it a desirable place to work.	(PI)	(PI)
			8. The organisation/forum/project is perceived by stakeholders as legitimate.	V	$\Diamond$
A	3. Resources	1) There are staff members exclusively dedicated to climate change adaptation.	1. There are organisational/forum/project personnel exclusively dedicated to health sector adaptation to climate change.	×	$\Diamond$
APPENDICES [A-123]		2) Staff are qualified and have experience in climate change adaptation.	2. Personnel are qualified and have experience in health sector adaptation to climate change.	V	$\overline{\mathbf{V}}$
PENDICE [A-123]		3) Staff are qualified and have experience in project/program management.	3. Personnel are qualified and have experience in project/program management.	V	V
S		4) Staff participate in ongoing training programs.	4. Personnel participate in ongoing training programs.	V	V
		5) Staff performance is appraised (formally or informally) at least annually.	5. Personnel performance is appraised (formally or informally) at least annually.	(NE)	V
		6) The organisation has untied funding.	6. The organisation/forum/project has untied funding.	$\Diamond$	$\overline{\mathbf{V}}$
		7) There is evidence that the organisation/forum/project includes a component exclusively focussed on health sector adaptation to climate change.	7. There is evidence that the organisation/forum/project includes a component exclusively focussed on health sector adaptation to climate change.	V	V
		8) External funding to the organisation has increased over the past 5 years.	8. External funding to the organisation/forum/project has increased over the past 5 years.	×	×
		9) The organisation has multiple funding sources.	9. The organisation/forum/project has multiple funding sources.	$\Diamond$	$\overline{\mathbf{A}}$

	10) The organisation has financial reserves.	10. The organisation/forum/project has financial reserves.	×	V
	11) The organisation has sufficient technological resources (e.g. intellectual property rights, patents, copyright, software licences etc.) to carry out its climate change adaptation mandate.	11. The organisation/forum/project has sufficient technological resources (e.g. intellectual property rights, patents, copyright, software licences etc.) to carry out its climate change adaptation and health mandate.	(PI)	(PI)
4. Structure, systems and	1) There is a low degree of hierarchy (i.e. few hierarchical levels).	1. The organisation/forum/project has a low degree of hierarchy (i.e. few hierarchical levels).	(PI)	(PI)
processes	2) The organisation has a human resource management system that supports the shaping of organisational culture and staff recruitment, training, development and retention.	2. The organisation/forum/project has a human resource management system that supports the shaping of organisational culture and staff recruitment, training, development and retention.	(PI)	(PI)
	3) There is a financial management system that meets International Financial Reporting Standards (IFRS) or its equivalent.	3. The organisation/forum/project has a financial management system that is internationally recognised.	<b>♦</b>	<b>V</b>
	4) The organisation applies risk management principles in its decision-making processes.	4. The organisation/forum/project applies risk management principles in its decision-making processes.	(PI)	(PI)
	5) The organisation has a centralised, user-friendly internal data management system.	5. The organisation/forum/project has a centralised, user-friendly internal data management system.	(PI)	(PI)
	6) The organisation has a user-friendly project/program management system (e.g. that supports staff to identify, schedule and track resources etc.).	6. The organisation/forum/project has a user-friendly project/program management system (e.g. that supports personnel to identify, schedule and track resources etc.).	(PI)	(PI)
	7) There are mechanisms that support vertical and horizontal communication.	7. There are mechanisms that support both vertical and horizontal communication within the organisation/forum/project	(PI)	(PI)
	8) There are internal dispute resolution protocols.	8. The organisation/forum/project has internal dispute resolution protocols.	(PI)	(PI)
5.Research and collaboration	1) The organisation has plans and policies that support research.	1. The organisation/forum/project has plans and policies that support research.	V	V
capacity	2) There are organisational funds allocated for research.	2. There organisation/forum/project has funds allocated for research, or facilitates access to research funds.	$\overline{\mathbf{V}}$	V

APPENDICES [A-124]

		3) The organisation has equipment, expertise and/or resources (e.g. access to journal articles etc.) for research.	3. The organisation/forum/project has equipment, expertise and/or resources (e.g. access to journal articles etc.) for research, or is able to facilitate access to research related resources	<b>V</b>	V
		4) The organisation's current strategic plan (or a similar document) outlines plans for collaboration with multiple stakeholders on adaptation-related initiatives.	4. The current organisational/forum/project strategic plan (or a similar document) outlines plans for collaboration with multiple stakeholders on health sector adaptation-related initiatives.	<b>V</b>	<b>V</b>
		COMPONENT TWO: Pi	roject/Initiative Effectiveness		
	1. Needs and goals	1) The project documents contain evidence that the project/program fills an existing need with relation to climate change adaptation.	1. There is evidence that the project/program/forum initiative is filling an existing need with relation to climate change adaptation and health.	$\checkmark$	V
APPENDICES [A-125]		2) The project/program's adaptation components could be considered 'transformational' (i.e. the project/program focusses on "larger, more profound system changes" and requires a "paradigm shift" in the way it is framed and implemented).	2. The adaptation focus of the project/program/forum's initiative could be considered 'transformational' (i.e. there are marked shifts in the way the health sector is framed and the way it operates, leading to "larger, more profound system changes".).	<b>\$</b>	<b>\$</b>
ENDICE [A-125]		3) Climate change adaptation is a goal of the project/program.	3. Climate change adaptation and health is a goal of the project/program/forum initiative/activity	V	V
S		4) The project/program's goals reflect the long-range impacts of climate change.	4. The initiative/activity goals reflect the long-range impacts of climate change.	$\checkmark$	V
		5) The project/program's objectives relating to climate change adaptation are specific, measurable, achievable, realistic and time-bound (SMART).	5. The initiative/activity's objectives relating to climate change adaptation and health are specific, measurable, achievable, realistic and time-bound (SMART).	×	V
		6) Member Countries were involved in developing the climate change adaptation components of the project/program.	6. Member Countries were involved in developing the climate change adaptation and health components of the initiative/activity	V	
	2. Scope	1) The project/program addresses multiple climate or climate-induced vulnerabilities (e.g. vulnerability to sea-level rise, increased sea surface and air temperature, changing rainfall patterns etc.).	1. The initiative/activity addresses multiple climate or climate-induced and health-related vulnerabilities (e.g. vulnerability to sea-level rise, increased sea surface and air temperature, changing rainfall patterns etc.).	V	

			1	1
	2) The project/program addresses multiple non-climate-induced vulnerabilities (e.g. poverty, deforestation etc.).	2. The initiative/activity addresses multiple non-climate-induced health-related vulnerabilities (e.g. poverty, deforestation etc.).	$   \sqrt{} $	$\overline{\mathbf{V}}$
3. Logic, design and adequacy	1) The logic/design of the project/program's climate change adaptation components is evidence-based, in the context of SIDS.	1. The logic/design of the initiative/activity's climate change adaptation and health components is evidence-based and contextualised.	<b>V</b>	V
	2) The project documents contain evidence that the logic/design of the project/program's climate change adaptation components is an effective means to achieve its objectives.	2. There is evidence that the logic/design of the initiative/activity's climate change adaptation and health components is an effective means to achieve its objectives.	×	
4. Resources	Staff members are assigned exclusively to the project/program.	1. Personnel are assigned exclusively to the initiative/activity.	×	<b>♦</b>
	2) The project/program team includes staff members with qualifications and experience in climate change adaptation.	2. Personnel involved with implementing the initiative/activity's adaptation components have qualifications and experience in climate change adaptation.	V	V
	3) The project/program team includes staff members with qualifications and experience in project/program management.	3. Personnel involved with implementing the initiative/activity's adaptation components have qualifications and experience in project/program management.	(NE)	V
	4) The project documents contain evidence that there are sufficient staff members to achieve the project/program objectives.	4. There is evidence that there are sufficient personnel to achieve the objectives of the initiative/activity.	(NE)	V
	5) The project documents contain evidence that there is sufficient funding for the project/program's climate change adaptation components.	5. There is evidence of sufficient funding for the initiative/activity's climate change adaptation components.	X	V
5. Technical efficiency	1) The project documents contain evidence that the project/program provides value for money (cost vs. outputs).	1. There is evidence that the initiative/activity provides value for money (cost vs. outputs).	V	<b>♦</b>
6. Implementation	1) The project/program's climate change adaptation components are implemented, as proposed.	1. There is evidence that the initiative/activity's climate change adaptation and health related components have been implemented as proposed.	$\Diamond$	×

7. Monitoring	1) The project/program is internally monitored and	1. There is evidence that the initiative/activity is internally		
and evaluation	evaluated.	monitored and evaluated.	×	×
	2) The project/program is externally monitored and	2. There is evidence that the initiative/activity is externally	×	$\Diamond$
	evaluated.	monitored and evaluated.		
8. Sustainability	1) There are sustained outputs from the project/program.	1. There is evidence of sustained outputs from the	(NE)	(NE)
		initiative/activity.	(INE)	(INE)
	COMPONENT THR	EE: Output Effectiveness		
1. Goal	1) There is evidence in the most recent annual report or	1. There is evidence in the most recent annual report or		
attainment	evaluation that the climate change adaptation-related	evaluation that the climate change adaptation and health-related	lacksquare	$\overline{\mathbf{V}}$
	objectives of the organisation are being achieved.	objectives of the organisation/project/forum are being achieved.		
2. Research and	1) The organisation produces and/or publishes research that	1. The organisation/project/forum produces and/or publishes		
knowledge	is relevant to climate change adaptation at least annually.	research that is relevant to climate change adaptation and health	lacksquare	$\checkmark$
management		at least annually.		
	2) The organisation makes climate change adaptation-	2. The organisation/project/forum makes climate change	<b>V</b>	<b>V</b>
	relevant research publicly available.	adaptation and health related research publicly available.		
3. Collaboration	1) There is evidence that the organisation collaborates with	1. There is evidence that the organisation/project/forum		
and advocacy	multiple stakeholders to undertake climate change	collaborates with multiple stakeholders to undertake climate	$\overline{\mathbf{V}}$	$\overline{\mathbf{V}}$
	adaptation-related activities.	change adaptation and health-related activities.		
	2) The organisation advocates for political, financial and/or	2. The organisation/project/forum advocates for political,		
	other climate change support for its Member Countries in	financial and/or other climate change and health related support	lacksquare	$\checkmark$
	various fora at different scales.	for its Member Countries in various fora at different scales.		
4. Education	1) The organisation undertakes climate change adaptation	1. The organisation/project/forum undertakes climate change		
and training	stakeholder and/or public awareness activities.	adaptation and health related stakeholder and/or public	$\checkmark$	$\checkmark$
		awareness activities.		
	2) The organisation develops and/or implements training	2. The organisation/project/forum develops and/or facilitates the		
	programs for stakeholders in issues related to climate	implementation of training programs for stakeholders in issues	$\checkmark$	$\checkmark$
	change adaptation.	related to climate change adaptation and health.		
5. Specialised	1) The organisation provides specialised climate change	1. The organisation/project/forum provides specialised climate		
advisory	adaptation-related advice to Member Countries and/or	change adaptation and health related advice to Member		$\checkmark$
services	other stakeholders.	Countries and/or other stakeholders.		

APPENDICES [A-127]

Appendix 5.2: Modified FAROCCCA applied to the Asia-Pacific Regional Forum on Health and Environment (APRF)

	RATING SYSTEM				
<b>⊠</b> No					
♦ To some extent					
☑ Yes					
(NE) No evidence					
(PI)	Perceptual indicator or indicator not rated in this paper				

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		COMPONENT 1. Input Effectiveness	
1. Goals	1. Health sector adaptation to climate change was an initial goal of the organisation/forum./project	"Governments should address the health impacts and implications of the following priority areas of environmental concern at the local, national, regional and global levels:  • Air quality  • Water supply, hygiene and sanitation  • Solid and hazardous waste  • Toxic chemicals and hazardous substances  • Climate change, ozone depletion and ecosystem changes  • Contingency planning, preparedness and response in environmental health emergencies" (RFEH 2007a, Article 3)(This is the RFEH Charter)  The APRF charter clearly addresses the concern of health impacts relating to a changing climate	<b>V</b>
	2. Health sector adaptation to climate change is a current goal of the organisation/forum/project.	"Understanding that the environment in which we live has both pathogenic and salutary effects on our health and that our common goal is the attainment of healthy lives through healthy environments and sustainable development;  Recognizing the need to achieve that goal by ensuring clean air, safe and adequate water, environmentally sound treatment and safe disposal of waste, safe management of chemical substances, adequate response and adaptation to climate change, efficient and effective actions in environmental health emergencies, and assessment of health impacts of these and other environmental hazards;" (RFEH 2013c, p. 1).  "We are bringing the policy-makers – we are presenting the inter-linkages between health and environmental issues, which includes the different types of pollution, and that is impacting health, including the climate change issues as well, when we are talking about the carbon pollution, which is increasing the temperature, as	<b>4</b>

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		well bringing the erratic behavior of rainfall, impacting the production of food and then how those are linked with the health, including the nutrition aspect of the population" [#19].  The Kuala Lumpur declaration on climate change re-iterates that adapting to climate change is a key component of environmental health concern. This is supported by [#19]'s comment.	
	3. Current strategies/plans contain specific climate change adaptation objectives for the health sector.	2014-2016 workplan includes a climate change and health activity, with timelines and outputs, however outputs are vague and don't show strong links to the goal – eg. Activity is to "To strengthen national and regional programmes on climate change impacts on health", and output 2 is "Side event at the 2014 Asia Pacific Adaptation forum in KL" (RFEH 2014a, p. 13)  There is a specific CCA objective (strengthening national and regional programs)	<b>V</b>
	4. There is no other regional organisation/forum/project with similar climate change adaptation goals for the health sector.	GEF funded project - Building Resilience of Health Systems in Asian LCDs to Climate Change, in Bangladesh, Cambodia, Lao PDR, Myanmar, Nepal, Timor-Leste, implemented by UNDP with support from WHO (GEF 2016).  [Note: Despite this project, GEF's establishment document doesn't include the word health (GEF 2015b), and GEF's strategy to 2020 only mentions human health in relation to chemical pollution (GEF 2015a).]  "The Asian Development Bank (ADB) has approved a pioneering regional technical assistance initiative, with finance from the Nordic Development Fund (NDF), to help Cambodia, the Lao People's Democratic Republic (Lao PDR), and Viet Nam respond to climate-induced health threats" (ADB 2015b, online).  And an overall goal for the ADB:  According to the ADB's 'Strategy 2020', "ADB will also help DMCs [developing member countries] adapt to the unavoidable impacts of climate change—including those related to health" (ADB 2008).  The ADB's strategy 2020 includes similar health and adaptation goals  The GEF does not have a direct mandate for adaptation and health in its strategic documents, but is funding at least one project with a similar goal in the region.	×
2. Governance and leadership	There is visionary leadership and strategic direction for the organisation/forum/project.	The leadership of the secretariat has been visionary. There has been a focus on generating ownership among member states for the goals of the regional forum through the use of peer pressure – member states knowing a meeting is coming up and that their peers will have (for example) produced an Environmental Health Country Profile (EHCP):  "rather than being seen as we are pushing, is to find mechanism where they feel that they [the member states – particularly developing countries] have to do, so for example, like we inviting them for a regional meeting, to update – is a kind of informal subtle way for them to do the country profile. So, we – I don't know, we plan to call for some kind of meeting in WHO, so that when they go, Oh, Nasir, ah Hassan is calling for country profile or data sheet" [#06]	<b></b>

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	2. There is an evaluation of organisational/forum/project performance at least annually conducted by the organisation/forum/project.	To qualify this, not everyone involved feels this way. For example, in an informal conversation, I was told that getting the ministerial meeting to sign off on the environmental health declaration was only useful because it would then give WHO or UNEP additional leverage to get national approval for running environmental health projects within participating countries.  Looking for ways to encourage and support national government personnel to take ownership of environmental health issues is visionary for two reasons:  1. National ownership will lead to better long-term success than ideas being pushed from the outside.  2. Institutionalising environmental health in national governments will help break down sectoral silos.  "Operations: the high-level official meeting will review the midterm progress of the Regional Forum during the past 18 months based on the current work plan" (RFEH n.d., Article 12)  "Role of Secretariat: the secretariat is responsible to prepare the work plan midterm progress review, interim priorities and targets of the Regional Forum for approval of the high-level officials" (RFEH n.d., Article 16).  "As you heard, our plan is to spend at least the first half of 2017 to really evaluate what regional forum so far has achieved, and to come up with more detailed plans of the regional implementation. And even revisit some of the mechanisms of the regional forum, like thematic working groups, so we have something that will continue to serve most efficiently the regional forum. I think it would be very intense six months next year, to revise the implementation plan, revisit the whole different mechanism under the regional forum, but after that we will be doing once a year at least — the joint evaluation between WHO — UNEP and that will be part of secretariat service we provide to high level officials and the regional forum itself." [#17]  There is evidence of the intention to conduct regular evaluations, however these evaluations are not present on the forum website. The most recent evaluation av	◆
	3. Organisational/forum/project decision-making is done by consensus or majority vote.	"Recommendations and decisions of the scientific panel shall be decided by consensus where possible, with all core members supporting a particular point of view. Where consensus is not reached, all recommendations shall be presented to the Regional Forum and the lack of consensus noted" (RFEH n.d.).  The charter for the Forum implies that decisions are made by consensus:  "The Forum shall: []  (c) formulate recommendations on the implementation of the consensus established by the Forum;" (RFEH 2007a).  Researcher observations of the workings of the forum indicate decision-making by consensus, and this is backed up by the implication in the forum charter, as well as the guidance for the scientific panel on how its decisions should be made.	V
	4. Organisational/forum/project personnel are qualified and/or	"The meetings will be attended by the Ministers of Health and Environment and high-level government officials from the Ministries in charge of environment and health issues in the 14 countries, representatives	$\overline{\checkmark}$

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SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	equipped to achieve the goals of the organisation/forum/project.	from relevant UN agencies, Asian Development Bank, World Bank and other international partners, government officials of other Asian countries and members from academia, professional associations and non-governmental organisations" (RFEH 2007c, Participants).	
		"Each of the 14 member countries designates a national communication focal point (NFP), one from the Ministry of Health and one from the Ministry of Environment" (RFEH 2007b, Article 4). "The Ministers of Environment and the Ministers of Health of member countries will meet at a minimum of once every three years to:  a) provide overall guidance and strategic direction consistent with the vision, goal and objectives of the Regional Forum;	
		b) determine priority areas and associated actions to improve health and the environment in the region; c) enhance coordination and cooperation among countries and partner agencies in addressing identified environment and health priorities; d) review and discuss the reports, scientific evidence and proposed recommendations of the Secretariat; e) consider recommendations of member countries regarding future work and strategic directions; and f) invite and engage other countries or relevant entities to be members and participate in the work of the Regional Forum" (RFEH 2013b, p. 6).	
		Ministers of Health and Environment are at the top tier of government, and as such have significant resources at their disposal: personnel in the ministry (Human Resources), financial (Ministry budgets), information (about national priorities and what their ministries can and cannot achieve). They are also likely to have good networks associated with their respective portfolios (e.g. with development partners, private companies they could partner with).	
		Lesley Onyon is listed as a staff member taking leave, in the OECD's Environment, Health and Safety News (Newsletter) in 2001 (OECD 2001). Indicating over 15 years experience in environment and health.	
		Nassir Hassan (Responsible Officer for the APRFHE (APRFHE 2016a)) was listed as an expert resource (as an environmental engineer) in the Cambodia 2011 Human Development Report, which focussed on resilience and people's well-being in the face of climate change (MoE Cambodia and UNDP Cambodia 2011).	
		Both Dr Lesley Onyon and Dr Mhd. Nasir Hassan (listed as secretariat members) have experience and expertise in environmental health.	

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SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	5. Organisation/forum/project personnel are required to disclose potential conflicts of interest.		(PI)
	6. The organisation/forum/project has mechanisms to attract, retain and develop talent.	"the second one [Ministerial Forum] was carried out in Jeju [] [in 2010] and that was a time that we that we feel that the regional forum is not getting the momentum, one of the main reasons is that there is no resource, and ASEAN did not put official committeent. Resources is a big issue, [] financial resources, but it has also maybe a lack of technical impact. So in Jeju, Korea, the Ministers ask, establish a committee to review the regional forum, review include closing [], we found out from member states – all these fourteen countries, saying that not only is it important, but they want to pursue this regional forum. It a very important platform in spite of challenges and so on and so forth. And the third one we had in Kuala Lumpur in 2013 – the third one – everyone say we want this to go on, with probably an improved direction, probably more focus areas of work" [#06]  Cambodia and Vietnam both have weak health sectors, and this can impact on their ability to attract the best talent. Eg. Some staff in the health ministry "are not happy because often there are many issues – they don't have any people in charge – some document from up there came from minister of health and nobody looks at those documents because they don't have the responsibility they don't have the benefits" [VN#04]. "Yes, [the finance ministry] is a more attractive place to work [than the health ministry] because the staff they have more income" [VN#04]  Similarly, Cambodian respondents discussed the lack of funding for climate change and health activities, so that in the first year of a five year action plan on climate change there have been no climate change and health activities [CB#05,CB#06]  In Contrast, Myanmar has a strong health sector, although senior health ministry personnel have left the health ministry to take up senior roles in other sectors such as social welfare (identifying reference).  The secretariat for the Forum is "quite small – it just me, it was me on the UNEP side, and on the WHO side they have people, two	◆

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SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		Lumpur) increased to 34 countries represented in the 2016 ministerial forum (manila) – indicating a high interest in the region in environment and health related issues and how to address them.	
	7. Leaders create a dynamic organisational/forum/project culture, making it a desirable place to work.		(PI)
	8. The organisation/forum/project is perceive by stakeholders as legitimate.	"there was this taskforce that was about revising the whole operation. So there was a questionnaire that was sent to all the member states focal points, all agency focal points, and we then compiled it with all the recommendations and sent it back. So there was a lot of back and forth through the focal points in the agencies [] once we got this back, as a secretariat it was compiled into a report that was then again submitted to the focal points and to the ministries for – with a few recommendations coming from the questionnaires on how to re-structure. And then this would be the main background document for discussion in the high level meeting. [] [O]ne of the things that happened in this process of revising the operation was to – replace the advisory report with a scientific panel. So that would give more hard evidence – let's say substantial information for the high level officials to decide. And then whatever came out of the high level officials discussions would be fed into the ministerial meetings for final approval." [#03]  The process outlined here is a clear indication of national focal agency involvement in developing a meeting agenda item on re-structuring the APRF operations. This participation from member states builds the APRF's "right to be and do", so that it is "lawful, admissible and justified in its chosen course of action" (Edwards in Collingwood 2006).  Further evidence that stakeholders view the APRF as legitimate is provided by [#10]: "from the [last] high level meeting [] WHO and UNEP asked [] members to develop or update the environmental [health] country profile, and then send back [] — we already send".	V
3. Resources	1. There are organisational/forum/project personnel exclusively dedicated to health sector adaptation to climate change.	This is dependent on the country. For example, MM health ministry has a disaster response division. Disasters include earthquakes as well as other non-climate-related events, but also floods, cyclones and droughts which are increasing in severity and number in Myanmar (identifying reference).  "About the capacity of the ministry of health, maybe I would just comment that the department of preventative medicine, who you have gotten to know, there is probably seven eight staff there, headed by Dr [Prak] Piseth Raingsey, the director, her deputy is Dr Hero. And when you look atthis is their baby [indicating the projects on the summary sheet] this is their baby, that's a couple of million dollars over the next few years, and even to some extent this [GIZ] is theirs, and this [other GIZ] as well, although some of it's more through	×

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		CNM, which really should also be coordinated by preventative medicine department. They, not to say they won't grow to suit to the task, but you can't just put multi-million dollar flow into a department that's doing six or eight or ten things now, without some corresponding increase in capacity there" [C#07] In Vietnam, all climate change related activities are the responsibility of MONRE, however climate change and health is the responsibility of the Vietnam Health and Environment Management Agency (VIHEMA), which has several divisions.  At UNEP: "The linnkages [with the regional forum's TWG on climate change] are actually through me, [but do] we have a specific person to deal with this, the answer is no." [#19]  The secretariat for the Forum is "quite small – it just me, it was me on the UNEP side, and on the WHO side they have people, two people, one from their, each of their regional offices" and for me "it's a part time role" [#02]  "We have decided as regional office that this environment and health forum is very important work to focus [on] [] "Now that the global mandate has caught up, in coming years we have more motivation and the reason to further strengthen our [support] to the countries on environmental health. So, until now, my job is not to coordinate environmental health work, my job is the sub-regional coordinator on the chemicals and waster, but I add on my job description that I can dedicate up to 20-30% of my time on the issue of regional significance. And for this regional office they have decided that the majority of my time (of that 20-30%) should be allocated to environment and health coordination" [#17].  Nassir Hassan is the responsible officer for the APRFHE, as part of his role as "Coordinator Health and the Environment Division of NCD and Health through the Life-Course [at] WHO Regional Office for the Western Pacific" (APRFHE 2016a: 38).  The forum secretariat does not have dedicated personnel  While the information is not totally clear, it is unlikely that developing member coun	
	2. Personnel are qualified and have experience in health sector adaptation to climate change.	<ul> <li>DrKolHero (Director, department of preventive medicine, Cambodia), and Dr Piseth Raingsey (previous director of department of preventive medicine, Cambodia, (responsible for health sector adaptation to climate change)) are both co-authors of journal articles on diarrhoeal diseases and climate change in Cambodia:         <ul> <li>McIver, Lachlan J., Imai, Chisato, Buettner, Petra G., Gager, Paul, Chan, Vibol S., Hashizume, Masahiro, Iddings, Steven N., Kol, Hero, Raingsey, Piseth R., and Lyne, K. (2016) <u>Diarrheal diseases and climate change in Cambodia: environmental epidemiology and opportunities for adaptation.</u> Asia-Pacific Journal of Public Health, 28 (7). pp. 576-585</li> </ul> </li> </ul>	V

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SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		• McIver, L. J., V. S. Chan, K. J. Bowen, S. N. Iddings, K. Hero and P. P. Raingsey, 2016. Review of climate change and water-related diseases in Cambodia and findings from stakeholder knowledge assessments, <i>Asia Pacific Journal of Public Health</i> , 28(2_suppl): 49S-58S.	
		Dr Hero was involved in the preparation of the Strategic Pilot Program for Climate Resilience Project, in 2011	
		(PSPPCRP 2011).  These two people are examples of national level personnel with demonstrated experience in health sector adaptation to climate change.	
	3. Personnel are qualified and have experience in project/program management.	[#06] has substantial project management experience – during the interview this respondent discussed ways to encourage stakeholder ownership of APRF activities and processes, such as preparing environmental health country profiles. This project management experience is particularly important as the RFEH doesn't provide funding for these activities.  In 2007 Kakuko Yoshida-Nagatani (Member of Secretariat (RFEH 2016a)) was consulted for advice on developing project management skills (Timmer et al. 2007).  This is evidence of these project management experience of these two aprf personnel.	<b>V</b>
	4. Personnel participate in ongoing training programs.	"we have to do some training and capacity building, some program, related to, say, burden of disease, how to calculate, how to evaluate, how to do some epidemiological work and so forth" [#06]  Under the heading of 'Capacity Strengthening Programme', the Progress Report on the Regional Forum on Environment and Health (2013–2016) describes training modules run on Climate change and Health, on Health, Environment and Development, and an Occupational Health Services Study Tour (RFEH 2016b).  Training for forum personnel (ie those at the national level working in environmental health fields) are described in interview data and evaluation documents	V
	5. Personnel performance is appraised (formally or informally) at least annually.		(PI)
	6. The organisation/forum/project has untied funding.	The individual countries carry the primary responsibility for funding for forum related activities, and there is a big variety in how detailed forum related outputs are, such as the NEHAPs. [#02]  The countries involved don't necessarily have the finances available 'in-house' to conduct the forum related activities, and the secretariat has discussed working with member countries to develop proposals for funding through mechanisms such as the GEF. [#02]  However despite this lack of untied funding, the purpose of the RFEH is to use peer-support and peer-pressure to encourage member states to take ownership of environmental health activities themselves (including those	<b>♦</b>

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		related to climate change), rather than relying on others to bring projects to them – although working with member states to develop proposals for the GEF blurs this distinction somewhat.	
		As countries are responsible for funding for activities and initiatives, the funding is the responsibility of national governments (both through their tax bases and through international support)	
	7. There is evidence that the organisation/forum/project includes a component exclusively focussed on health sector adaptation to climate change	<ul> <li>Objectives of Climate Change TWG</li> <li>"To enhance regional knowledge management and technical support for emerging and re-emerging infectious diseases associated with climate change, ozone depletion and eco-system change through information sharing and regional cooperation;</li> <li>"To strengthen capacity building of researches and scientists in understanding the complex interrelationship between climate change, ozone depletion, ecosystem change and human health particularly infectious diseases; and</li> <li>"To promote measures to mitigate health impact of climate change using success story of decreasing of substance related to ozone depletion" (RFEH 2014b, online).</li> <li>All three objectives include responses to climate change impacts (i.e. adaptation), but also refer to ozone depletion and eco-system change.</li> <li>However, "Ozone depletion is only the title, nothing is being done on that. Ecosystem change is very small – it is almost entirely a climate change group" [#06].</li> <li>The forum can be considered to engage in governance exclusively around adaptation and health.</li> </ul>	V
	8. External funding to the organisation/forum/project has increased over the past 5 years.	"the secretariat – one of it's roles is to support member states in raising funds" [#02] "These thematic working groups were led by countries on a voluntary basis. In some cases the thematic working groups worked - quite often they had meetings they managed to get funding, but in other cases the funding was not there, and maybe the countries that were interested" [#03] "Another aspect is of course, resources. WHO and UNEP provide financial – small amount of financial resources, which are mostly used for the travel of participants from developing countries to come to these meetings, if we had more resources we could certainly do more work on policy and assessment work" [#02] The APRF does not have funding for its activities, except funding for travel of some participants to meetings.	×
	9. The organisation/forum/project has multiple funding sources.	"Another aspect is of course, resources. WHO and UNEP provide financial – small amount of financial resources, which are mostly used for the travel of participants from developing countries to come to these meetings, if we had more resources we could certainly do more work on policy and assessment work – that would then allow for more substantive discussions and policy discussions at these forums, so that is something that we could do, but we don't have ther resources for" [#02].	<b>♦</b>

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		"the other issue would be the funding of the whole forum. It's mainly on a voluntary collaborations and the funding has not been very stable" [#03] "Whether the regional mechanism can survive with, again there's not much money from WHO going into that, there's some, and thankfully some, probably even more from UNEP, I'm not sure. But the countries themselves have to contribute – they have to contribute a lot of their own costs. So whether this survives or not will depend on the member [states]" [C#07]  The aprf is reliant on funding from the organisations which make up its secretariat in order that some participants can attend the meetings. [#03]'s quote suggests that member countries make voluntary contributions to cover aprf expenses, which would constitute multiple sources. However [C#07]'s quote indicates that the member state contributions are to cover their own costs. As the information is not completely clear, and somewhat contradictory it is classified as a somewhat	
	10. The organisation/forum/project has financial reserves.	As per above, the APRF relies on WHO and UNEP for participant travel money – therefore the APRF does not have financial reserves.	×
	11. The organisation/forum/project has sufficient technological resources (e.g. intellectual property rights, patents, copyright, software licences etc.) to carry out its climate change adaptation mandate.		(PI)
4. Structure, systems and processes	1. The organisation/forum/project has a low degree of hierarchy (i.e. few hierarchical levels).		(PI)
	2. The organisation/forum/project has a human resource management system that supports the shaping of organisational culture and staff recruitment, training, development and retention.		(PI)
	3. The organisation/forum/project has a financial management system that is internationally recognised.	"UNEP is an Implementing Agency of the <u>GEF</u> with the World Bank and the United Nations Development Programme ( <u>UNDP</u> ) and is the only <u>GEF</u> Agency whose core business is the environment." ( <a href="http://www.unep.org/dgef/AboutUNEPGEF/tabid/54444/Default.aspx">http://www.unep.org/dgef/AboutUNEPGEF/tabid/54444/Default.aspx</a> )  As part of the forum secretariat, UNEP has the financial management recognition of the GEF	<b>♦</b>

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		However as noted in 3.9 & 3.10 the APRF does not appear to have its own funding, but is reliant on UNEP and WHO. Therefore, the researcher concluded that the APRF probably does not have, but could develop,p a financial management system that is financially recognised if necessary.	
	4. The organisation/forum/project applies risk management principles in its decision-making processes.		(PI)
	5. The organisation/forum/project has a centralised, user-friendly internal data management system.		(PI)
	6. The organisation/forum/project has a user-friendly project/program management system (e.g. that supports personnel to identify, schedule and track resources etc.).		(PI)
	7. There are mechanisms that support both vertical and horizontal communication within the organisation/forum/project		(PI)
	8. The organisation/forum/project has internal dispute resolution protocols.		(PI)
5. Research and collaboration capacity	1. The organisation/forum/project has plans and policies that support research.	Environmental Health Country Profiles project The Environmental Health Country Profiles project, initiated by the forum, supports research with climate change links (the draft synthesis report of environmental health country profiles includes the term "climate change" 37 times) (RFEH 2016c).	Ø
	2. There organisation/ forum/project has funds allocated for research, or facilitates access to research funds.	"WHO and UNEP together have been preparing some environmental health data sheets – pulling together data that the countries can use in their plans and NEHAPS, but generally so far at the country level it's been WHO that's been providing more day to day support on the development of these plans. Because WHO has country offices where we don't" [#02].  The APRF doesn't have funding of its own, but it does have the facility to organise some support from WHO country offices	V
	3. The organisation/forum/ project has equipment, expertise and/or	The APRF doesn't have funding of its own, but it does have the facility to organise some support from WHO country offices	$\overline{\checkmark}$

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	resources (e.g. access to journal articles etc.) for research, or is able to facilitate access to research related resources	Also, WHO produces research on climate change adaptation and health, and makes this publicly available. For example who has a website of climate change and health publications (WHO 2017).	
	4. The current organisational/forum/project strategic plan (or a similar document) outlines plans for collaboration with multiple stakeholders on health sector adaptation-related initiatives.	The APRF's Kuala Lumpur Declaration includes that the member states, "[r]esolve to strengthen our cooperation to improve inter-agency, multisectoral, bilateral, regional and international cooperation, coordination and planning through capacity-building, and also to improve the management of common and trans-boundary and cross- border issues;  Invite other countries in the region to join the Regional Forum on Environment and Health in Southeast and East Asian Countries for the common benefit of all and for the sake of learning from and assisting each other in creating a better environment to promote health for all;  Urge governments, the private sector, civil society, nongovernmental organizations, academia, occupational groups, youth and women groups, and media to be actively engaged in this process, further building ownership and commitment"(RFEH 2013c, pp 2-3).  In addition to the above, the premise of the aprf is to bring together ministers and personnel from health and environment ministries	<b>V</b>
		Effectiveness of Project/Organisation/Forum Initiative – RFEH Climate Change TWG	
1. Needs and goals	1. There is evidence that the project/program/forum initiative is filling an existing need with relation to climate change adaptation.	The climate change and health TWG has three objectives. The second of these is: "To strengthen capacity building of researches and scientists in understanding the complex inter-relationship between climate change, ozone depletion, ecosystem change and human health particularly infectious diseases" (UNEP 2017b: Online).  With reference to climate change adaptation, capacity building is a clear area of need in Southeast Asia. In Cambodia, for example, "[b]ut coming into implementation is very limited. Mainly Ministry of Health would not have enough resources including financial capacity and human resource capacity to translate what they have written on the paper [laws, regulations, decrees etc] into practicality" [C#11]. Also see the work of authors such as (Willems and Baumert 2003, Bowen et al. 2015, Dany et al. 2015).	$\square$
	2. The adaptation focus of the project/program/forum's initiative could be considered 'transformational' (i.e. there are marked shifts in the way the health sector is framed and the way it operates, leading to "larger, more profound system changes".).	Maybe: the objectives of the CCTWG do not appear transformational on their own, however as a whole the APRF is highlighting the links between environment and environmental change and human health. This is part of a broader effort (e.g. Watts et al. 2015), with the IPCC also reporting on links between population health and economic development (Smith et al. 2014)  Highlighting health and environment links (including climate change related) could be considered transformational because it is attempting to, in the minds of policy-makers, shift thinking away from ideas of the health sector from being a cost on society to those of the health sector bringing about long term gains for society.	<b>♦</b>

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	3. Climate change adaptation is a goal of the project/program/forum initiative/activity	<ul> <li>Objectives of Climate Change TWG</li> <li>"To enhance regional knowledge management and technical support for emerging and re-emerging infectious diseases associated with climate change [] through information sharing and regional cooperation;</li> <li>"To strengthen capacity building of researchers and scientists in understanding the complex interrelationship between climate change [] and human health particularly infectious diseases; and</li> <li>"To promote measures to mitigate health impact of climate change using success story of decreasing of substance related to ozone depletion" (RFEH 2014b, online).</li> <li>All three of these objectives relate directly to climate change adaptation, because the focus is on the impacts of climate change and how to deal with these impacts.</li> </ul>	<b>V</b>
	4. The initiative/activity goals reflect the long-range impacts of climate change.	As above: resolving the governance issues of coordination ties in with dealing with long range impacts of climate change – establishing robust and flexible governance mechanisms that support and encourage collaborative cooperation between health and other sectors and geographies facilitates resilience to climate change impacts. Building capacity and developing strong understandings of the relationships between climate change and human health reflects the long time-scale associated with climate change impacts.	V
	5. The initiative/activity's objectives relating to climate change adaptation are specific, measurable, achievable, realistic and time-bound (SMART).	Example from draft workplan for climate change and health TWG (2013): "Objective: Effective management of the climate change impacts for the benefit of human health. Activity: Creation of a task force of members for the formulation of a regional project proposal on black carbon to submit toGEF6 and adaptation fund board Timeline: 1q 2014 – 2q 2015 Facilitator: UNEP/RRCAP" (CCTWG 2013: 44)  This example shows a weak link between the activity and the objective – while the activity may contribute towards the objective, the activity is to create a task force, and there has not been a proposal, funding or project to have any impact on effective management of climate change impacts. There is a timeline and a responsible party indicated.	×
	6. Member Countries were involved in developing the climate change adaptation components of the initiative/activity	"we solicit opinions from member states through the speeches of the high level officials and especially speeches of the Ministers at the meetings, so we ask them, probably before they come for the meeting, and ask them to tell us what they think the regional forum should work on. What they think the regional forum should focus on – what kind of added value that regional forum should base – so we went through every single speech of all Ministers of the all the fourteen – some of them even two speeches per country, so we went through and then we narrow it down, what are the common issues that have been discussed – and then narrow it down, narrow it down until eventually find out that most of the Ministers are talking about, for example, action not only information sharing, but also some actions. So this includes for example, especially developing	<b>V</b>

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
COM ONLIN		countries saying it is very important for countries to develop policies based on evidence, for example"[#06]. – this is the APRF  Similarly, "there was this taskforce that was about revising the whole operation. So there was a questionnaire that was sent to all the member states focal points, all agency focal points, and we then compiled it with all the [] we needed to have a lot of follow-up to get some answers. But once we got this back, as a secretariat it was compiled into a report that was then again submitted to the focal points and to the ministries for — with a few recommendations coming from the questionnaires on how to re-structure. And then this would be the main background document for discussion in the high level meeting." [#03] again this is the APRF but it gives an indication of procedures.  From the Climate Change and Health TWG held in Jakarta, December 2013: "The chair, Ms. Sri Tantri Arundhati requested to participants that they make comments on the draft Work Plan Activities [for the Climate Change and Health TWG] starting from Brunei Darussalam who requested a quick read through. Then the chair read through the Draft Activities Work Plan. According to Dr. Hassan, the activities in the work plan are not just for the host country to implement but for all countries to offer support and assistance towards the TWG work plan" (CCTWG 2013)  The quotes from [#03] and [#06] give a sense of how the APRF operates overall in terms of decision-making inclusiveness. The quote from the TWG meeting shows that members countries were involved in developing the TWG work-plan.	
2. Scope	1. The initiative/activity addresses multiple climate or climate-induced vulnerabilities (e.g. vulnerability to sea-level rise, increased sea surface and air temperature, changing rainfall patterns etc.).	"from Cambodia mentioned that VBDs and water and food borne infectious diseases and impacts from extreme events are priority agenda to be listed" (CCTWG 2013: 17)  This is evidence that climate related impacts, to which a member state is vulnerable, are being discussed in the TWG.	
	2. The initiative/activity addresses multiple non-climate-induced vulnerabilities (e.g. poverty, deforestation etc.).	"2) Training for health and environment officials on proposal formulation to access funding opportunities [funding related vulnerability] Training for health and environment personnel on climate change resilience" [capacity vulnerability] 3)CC&H country profiling; compilation, analysis, verification and publication of the country data acquired during the TWG meeting [information related vulnerability]" (CCTWG 2013: 44) "She lastly mentioned the challenges that Cambodia is facing are lack of human and financial resources and technical support." (CCTWG 2013: 17) The TWG has discussed a variety of areas for reducing vulnerabilities that are not directly related to climate change.	7

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
3. Logic, design and adequacy	1. The logic/design of the initiative/activity's climate change adaptation components is evidence-based and contextualised.	The objectives specified in the draft work-plan, and activities to achieve them, are derived from input from the member country representatives, using evidence they have presented from the member countries.	$\square$
	2. There is evidence that the logic/design of the initiative/activity's climate change adaptation components is an effective means to achieve its objectives.	Weak links between the CCTWG's objectives and the activities to achieve them, combined with a lack of monitoring and evaluation mean there is a lack of evidence that the design of the adaptation components is an "effective means to achieve objectives".	×
4. Resources	1. Personnel are assigned exclusively to the initiative/activity.	Refer to APRF resources – the secretariat does not have full-time staff therefore it cannot supply people exclusively to the CCTWG.  Refer to APRF resources – resource constrained developing countries with a large number of development priorities are unlikely to be able to assign personnel exclusively to the CCTWG Also, the CCTWG has not met since December 2013 [#06]	×
	2. Personnel involved with implementing the initiative/activity's adaptation components have qualifications and experience in climate change adaptation.	Focal point for Climate Change and Health in Cambodia has been the focal point since 2009 [#09], and is the director of the preventive medicine department, which is responsible for climate change and health in Cambodia. This individual is responsible for climate change and health TWG related activities in Cambodia "the seeds of putting that in motion came out of the TWG on climate change meeting in Jakarta. Because Dr Piseth Raingsey was there, her equivalent from the ministry of environment, climate change officer, I think on communication, the donors were there, there [were] side meetings, and including our experts from headquarters, who really do know their business on climate change and health" [C#07]  As noted in response to APRF personnel with experience in adaptation, Dr Piseth Rainsey has co-authored academic articles on diarrhoeal disease and climate change in Cambodia. Additionally, the CCTWG meeting in Jakarta (in Dec 2013) had climate change and health experts involved.	V
	3. Personnel involved with implementing the initiative/ activity's adaptation components have qualifications and experience in project/program management.	Kol Hero Cambodia (no evidence) Duong Danh Manh VIE (no evidence) Kyi Lwin Oo MM (no evidence)	(NE )
	4. There is evidence that there are sufficient personnel to achieve the objectives of the initiative/activity.		(PI)

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
	5. There is evidence of sufficient funding for the initiative/activity's climate change adaptation components.	Because the purpose of the Forum is to encourage ownership at the national level for environment and health concerns, the climate change and health TWG does not have activity related funding. This was highlighted by the chair and vice-chair of the Forum in 2013: "The secretariat has been requested to propose the Regional Forum work plan with regional activities and strategic areas for collaboration for the period 2014-2016. However, the implementation of the activities of the work plan is subject to availability of funds" (RFEH 2013a: 12)  Specifically, the climate change and health TWG draft work-plan also notes that proposed objectives and activities are "subject to availability of funds" (CCTWG 2013: 45).  Evidence of sufficient funding is lacking	×
5. Technical efficiency	1. There is evidence that the initiative/activity provides value for money (cost vs. outputs).	At the 2016 Ministerial Meeting in Manila a proposal to cease the climate change and health TWG was voted down, indicating that member states value this TWG. [researcher observation during forum]  The initiatives are led by the national governments, and must be prioritised against competing interests in development, business, security etc But this doesn't really tell us whether it provides value for money.  Think about it in terms of regional initiatives to support health sector adaptation – there is basically no funding for the initiative itself from the forum, however the work is getting done, and so in terms of the forum itself it is providing value for money by generating enough ownership within national settings.	V
6. Implementation	1. There is evidence that the initiative/activity's climate change adaptation components have been implemented as proposed.	Objective: "Organization of a Climate Change and Health side event at the 2014 Asia Pacific Adaptation Forum" (CCTWG 2013: 44)  Health was included in the adaptation forum under the disaster risk reduction topic (APAN 2014)  The objective of including a side event didn't eventuate, however health and adaptation was included as part of the Asia pacific Adaptation Forum. This could be related to the CCTWG but could be related to broader global moves toward health sector adaptation	<b>♦</b>
7. Monitoring and evaluation	1. There is evidence that the initiative/activity is internally monitored and evaluated.	" 2013 or 2014 – it was the first and maybe the only working group on climate change – thematic working group on climate change. We was so much behind in that, because the chair of that thematic working group is the Republic of Indonesia" [#06].  In line with this quote, the researcher has not been able to find evidence of internal monitoring and evaluation of the CCTWG.	×
	2. There is evidence that the initiative/activity is externally monitored and evaluated.	No evidence was found of external monitoring and evaluation	×
8. Sustainability	1. There is evidence of sustained outputs from the initiative/activity.	Given the lack of M&E and also the reported lack of work on this TWG there is no evidence of sustained outputs.	(NE

	INDICATOR	EVIDENCE				RATING
COMPONENT		COMPONENT 3	Output Effective	2ness		
	1. There is evidence in the most recent annual report or evaluation that the climate change adaptation and health-related objectives of the organisation/project/forum are being achieved.	COMPONENT 3.		Outputs: TWG - Climate Change and Health 1. Regional workshop for the training of officers from member agencies on: a) GEF proposal formulation and other funding opportunities b)vulnerability assessments for risk mapping c) mainstreaming NEHAPs including in national adaptation plans. 2. Side event at the 2014 Asia Pacific Adaptation forum in KL. 3. Mapping of institutions and international/national agencies dealing with related issues. 4. Presentation on TWG at ASEAN WG on Climate Change by the TWG chair	Point of Contact Resources Points of Contact Indonesia (ChartwG) UNEP/WHO for technical Support  Partners: GIZ, Coordinati quality activities, GEF,  Resources: Cost-sharing base Countries Chairing of TW Change and Health, membe and	
		"Agree to cooperate to develone equivalent plans, that aim to push sustainability and improvement future generations in the region (RFEH 2013c: 2).  From the 2013-2016 progress	op and implement out sustainable ents in environment; report: "Twelve	pur, member countries of the Regional Forum ent national environmental health action plan environment and health at the centre of develontal quality, enhance public health, and ensure out of 14 Regional Forum countries have prousing WHO guidance documents. The 12 co	s (NEHAPs), or opment, result in the health of the duced a National	

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SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
2. Research and knowledge management	The organisation/project/forum produces and/or publishes research that is relevant to climate change adaptation at least annually.	Cambodia, China, Indonesia, Japan, Republic of Korea, Lao People's Democratic Republic, Malaysia, Mongolia, Philippines, Singapore, Thailand and Viet Nam" (RFEH 2016b: 4).  Ten of the twelve countries that have produced NEHAPs also outlined their environmental health situation. Nine of these ten countries included climate change as an environmental health issue (RFEH 2016b).  Health was included at the 2014 adaptation forum under the topic of disaster risk reduction Twelve of 14 member countries have produced NEHAPs, which has clear links to climate change, as identified by the goal of having NEHAPs mainstreamed, including in national adaptation plans.  The APRF by itself appears to have only initiated Environmental Health Country Profiles, Environmental Health Data Sheets, and NEHAPs However, as the bodies that make up the secretariat, WHO and UNEP both conduct research on climate change adaptation.  A search of the WHO global website for publications on climate change and health shows:  2015: 7 publications  2014: 3 publications  2012: 2 publications  2011: 1 publication  2010: 2 publications  2010: 2 publications  2009: 5 publications  (See: WHO (2017))  There are strong links between climate change adaptation and health, therefore this is taken as evidence of	✓
	2. The organisation/project /forum makes climate change adaptation-relevant research publicly available.	published research that is relevant to climate change adaptation and health.  The publications listed above are available on the WHO website (http://who.int/globalchange/publications/en/).  Publications are publicly available through the website	<b>V</b>
3. Collaboration and advocacy	1. There is evidence that the organisation/project/forum collaborates with multiple stakeholders to undertake climate change adaptation and health-related activities.	The Participant list from the Regional Forum held in Manila from 6-8 August 2016 includes stakeholders from 34 countries in Asia and the Pacific, as well as Observers from 16 organisations (NGOs, multilateral and bilateral development partners, coalitions), and members of the forum secretariat (RFEH 2016a). To revise the operation of the APRFHE, "there was a questionnaire that was sent to all the member states focal points, all agency focal points, and we then compiled it with all the recommendations and sent it back. So there was a lot of back and forth through the focal points in the agencies" [#03]. This forum included a moderated open forum on climate change and health (APRFHE 2016b).	

SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		The Climate Change and Health TWG meeting held in December 2013 involved TWG members from 20 countries in the Asia-Pacific region (CCTWG 2013).  There were participants at the Manila Ministerial forum from many different stakeholders The TWG members represented the governments of 20 countries in the region.	
	2. The organisation/project/forum advocates for political, financial and/or other climate change support for its Member Countries in various fora at different scales.	"but we have more challenges with developing countries. You just mentioned, rightly, just now, Cambodia – one of them. So, then I said, we still need to pursue this, but rather than being seen as we are pushing, is to find mechanism where they feel that they have to do, so for example, like we inviting them for a regional meeting, to update – is a kind of informal subtle way for them to do the country profile" [#06]  The environmental health country profiles have links to climate change (the draft synthesis report of environmental health country profiles includes the term "climate change" 37 times) (RFEH 2016c). The quote above indicates that the regional forum advocated for member countries to prioritise their individual environmental health country profiles.  "we've discussed the idea of preparing a project proposal for the GEF [] on climate change and health, so we're certainly willing to support them [] the member states [on that]. We're – the secretariat – one of it's roles is to support member states in raising funds" [#02]  The forum has a role to support member states to find financing for climate change and health activities.	V
4. Education and training	The organisation/project/forum undertakes climate change adaptation stakeholder and/or public awareness activities.	There was a climate change and health TWG meeting in Jakarta in December 2013: "The meeting of the Thematic Working Group (TWG) on Climate Change and Health of the regional forum was held from 9 to 12 December 2013. There were 29 participants (the list of participants is in Annex 1 and the meeting agenda is in Annex 2), including members of Thematic Working Group(TWG-CC) from twenty countries in the region, secretariats from the World Health Organization(WHO), United Nations Environment Programme (UNEP) and resource Persons" (CCTWG 2013: 1)  This is evidence of stakeholder activities for climate change and health.  At the 4 <sup>th</sup> Ministerial Meeting of the Forum (October 08, 2016) there was a climate change and health presentation and open forum lasting a total of 1 hour and 20 minutes (APRFHE 2016b).  Stakeholders were ministers and other senior government representatives from 34 Asia-Pacific nations, and observers from mulit- and bi-lateral development organisations, NGOs, and environmental health coalitions.	V
	2. The organisation/project/forum develops and/or facilitates the implementation of training programs for stakeholders in issues related to climate change adaptation.	"4.1 Climate change training module The WHO South-East Asia Region in collaboration with the WHO Western Pacific Region and the Deutsche Gesellschaft fur Interationale Zusammenarbeit (GIZ) convened the first Biregional Training on Climate Change and Health from 26 to 30 January 2015 at the Faculty of Medicine, University Gadjah Mada, Yogyakarta, Indonesia. The training was attended by seven countries from the Western Pacific and 10 countries from the South-East Asian Region. Most participants were from Ministries of Health, with some joining from Ministries of Environment.	V

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SUB- COMPONENT	INDICATOR	EVIDENCE	RATING
		The main objective of this training was to strengthen the health sector's institutional capacity to understand the linkages and streamline climate change in public health programmes; and to implement and sustain health adaptation plans. In turn, this will increase the decision-making ability of policy-makers; strengthen health systems; and address health issues in the policies and programmes of other sectors" (RFEH 2016b: 6). This training module was reported as an APRF activity and indicates training for stakeholders	
5. Specialised advisory services	1. The organisation/project/forum provides specialised climate change adaptation-related advice to Member Countries and/or other stakeholders.	Via observation – sessions at regional forum on the science and practice of health sector adaptation (e.g. one on mosquitos in Thailand) (researcher's observation)  At The 9 <sup>th</sup> High Level Officials Meeting of the Regional Forum there were specialised scientific presentations on the links between climate change and health (researcher's observation)  The Synthesis Report on Environment and Health Country Profiles summaries the "environment and health advances and challenges in the 14 countries that comprise the Regional Forum on Environment and Health in East and Southeast Asian countries: []. The report is based on country profiles submitted by the member countries in response to a questionnaire, and recent statistics from the World Health Organization (WHO) and other United Nations agencies, in the context of sustainable development and the Sustainable Development Goals (SDGs)" (RFEH 2016c: 2), in assist with achieving the Forum Objectives:  "1. To identify and address priority environment and health issues that require regional action;  2. To facilitate dialogue, exchange of knowledge and best practices to promote sustainable development in the areas of environment and health;  3. To develop and sustain mechanisms for collaborative action; and  4. To mobilize material, human and technical resources to support work on environment and health" (UNEP 2017a: Online)  In addition to the researcher's observations at the Manila forum, this provision of a synthesised summary of environment and health concerns, which include climate change and health concerns, constitutes specialised advice to the member countries (which the forum is ideally placed to provide).	V

Appendix 5.3: Modified FAROCCCA applied to the Asian Development Bank

RATING SYSTEM				
×	No			
<b>♦</b>	To some extent			
$\square$	Yes			
(NE)	No evidence			
<u>(PI)</u>	Perceptual indicator or indicator not rated in this paper			

SUB-COMPONENT	INDICATOR	EVIDENCE	RATING
		COMPONENT 1. Input Effectiveness	
1. Goals	1. Health sector adaptation to climate change was an initial goal of the organisation/forum /project	According to its charter, "The purpose of the [Asian Development] Bank shall be to foster economic growth and co-operation in the region of Asia and the Far East (hereinafter referred to as the "region") and to contribute to the acceleration of the process of economic development of the developing member countries in the region, collectively and individually" (ADB 1966 (updated 1994): Article 1).  In 1965 the ADB charter did not include health and adaptation to climate change concerns. Neither did the 1994 update.	×
	2. Health sector adaptation to climate change is a current goal of the organisation/forum /project.	"ADB will also help DMCs [developing member countries] adapt to the unavoidable impacts of climate change—including those related to health" (ADB 2008: 14)  Adapting to health related impacts of climate change is a current objective of the ADB	
	3. Current strategies/plans contain specific climate change adaptation objectives for the health sector.	2005 – 2015 Support for Preventive Health System in Vietnam does not reference climate change  The ADB's results framework for their strategy 2020 includes a number of indicators relating to health (e.g. water and sanitation, underweight children, under five mortality), and also adaptation related (percentage of operations supporting mitigation or adaptation) (ADB 2013b), but no indicators that explicitly combine adaptation and health.  There are no specific adaptation and health objectives	×
	4. There is no other regional organisation/forum/ project with similar	GEF has an adaptation to climate change strategy, which includes "Indicator 1.2.1.1.: Health measures introduced to respond to climate sensitive disease (type and level)" (GEF 2011) as an output for reducing "vulnerability in development sectors".	×

	climate change adaptation goals for the health sector.	The APRFHE articulates that, "Governments should address the health impacts and implications of the following priority areas of environmental concern at the local, national, regional and global levels:  • Air quality  • Water supply, hygiene and sanitation  • Solid and hazardous waste  • Toxic chemicals and hazardous substances  • Climate change, ozone depletion and ecosystem changes  • Contingency planning, preparedness and response in environmental health emergencies" (RFEH 2007a, Article 3)  Both the GEF and the APRF have similar health related climate change adaptation goals.	
2. Governance and leadership	1. There is visionary leadership and strategic direction for the organisation/forum /project.	"The second issue is that the bank is an investment bank, so focussing on the hard core sector, like transport, energy, water – and so, the social sector, particularly health are always a little bit struggling" "the problem is not so much the investment itself – the problem is the soft component of the health sector project. Because health – building a hospital is not building a road. A road you build it, you have to maintain it a little bit, but a hospital there is all the operation of all the hospital, which is extremely complex and requires a lot of skills and money and attention. So, we are always a little bit in problems in designing the soft component of a project" [#16] This is indicative of an organisational culture that is supportive of the status quo, and is thus less likely to pursue a visionary strategic direction.  "this is targeted at government officials – we want government officials to understand better, to know better what is going on. And then be able to advocate for themselves – so what change in behaviour do we want to see? We want to see a change in behaviour in the people who are in situations where they could be affected by climate change. But will this project directly lead to that? Not in the course of the project. But if the country identifies as a priority a need for behaviour change, then one of the pilots – we have pilots across 12 test provinces in the three countries – something there could address behaviour change at the community level – so I would say in general the answer is no, but it is a possibility that some of the components of the project could lead to small scale behaviour change" [#13]  This suggests that if changes were to occur that would be good, but it is not something that is actively being pursued.	×
	2. There is an evaluation of organisational/forum /project performance at least annually conducted by the	ADB publishes annual reports, eg. ADB (2006). 2006 Annual Evaluation Report (Manila, Philippines). See ADB (2016a).  ADB Annual reports are publicly available at: <a href="https://www.adb.org/documents/series/adb-annual-reports">https://www.adb.org/documents/series/adb-annual-reports</a>	

organisation/forum/		
project.	There is clear evidence that the ADB reports on their performance annually.	
3. Organisational/forum /project decision-making is done by consensus or majority vote.	"Except as otherwise expressly provided in the Agreement, all decisions of the Board shall be made by a majority of the voting power represented at the meeting" (ADB 2003, Section 8 (Voting)). Note that the term 'voting power' is unclear. Clarification from ADB charter: "The total voting power of each member shall consist of the sum of its basic votes and proportional votes.  (i) The basic votes of each member shall consist of such number of votes as results from the equal distribution among all the members of twenty (20) per cent of the aggregate sum of the basic votes and proportional votes of all the members.  (ii) The number of the proportional votes of each member shall be equal to the number of shares of the capital stock of the Bank held by that member.  2. In voting in the Board of Governors, each Governor shall be entitled to cast the votes of the member he represents. Except as otherwise expressly provided in this Agreement, all matters before the Board of Governors shall be decided by a majority of the voting power represented at the meeting." (ADB 1966 (updated 1994), Article 33 (Voting))  Summary: each member is allocated an equal share of basic votes (20% or total votes). The remaining 80% of the votes are allocated according to the shareholding of each of the banks members.  Decisions are made by majority vote, despite the majority being based on share-holding.	<b>V</b>
4. Organisational/forum /project personnel are qualified and/or equipped to achieve the goals of the organisation/forum/projec t.	"I work also with a health specialist colleague here, who is more junior, she has a PhD from Havard in public health – health management – so she's also providing technical inputs – and I also have a colleague in our social development climate change department [] she is also a health expert and she has provided a lot of technical expertise for the project" [#13]  Example: Dr Gene Peralta (involved in design of health sector resilience building project as an ADB staff member, in 2016 retired from full-time staff and works as a consultant) is recognised by the World Health Organization for her environmental health expertise (WHO 2004).  Susann Roth is a Senior Social Development Specialist, Asian Development Bank. She has worked in public health and the cross-over between health and development since 2006 (Roth 2017).  Ancha Srinivasan (co-author of the health sector resilience strengthening project), is the principal climate change specialist in the ADB's Southeast Asia Department. He "holds a Ph.D. from the University of Cambridge, UK, and has about 20 years of professional experience in interdisciplinary research and management, including climate change science and policy. Prior to joining the ADB, he was a Principal Researcher and Manager of the Climate Policy Project at the Institute for Global Environmental Strategies (IGES), Japan. He has contributed to several international initiatives, including the Intergovernmental Panel on Climate Change (IPCC), Global Environmental	V

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	Outlook-IV, Millennium Ecosystems Assessment, and the System for Analysis, Research and Training (START) as an author and/or reviewer. He has edited eight books, and is an author of more than 90 publications" (APAN 2012a). These are three clear examples of personnel who are qualified and have experience that support the climate change and health objectives of the ADB	
5. Organisation/forum /project personnel are required to disclose potential conflicts of interest.		(PI)
6. The organisation/forum /project has mechanisms to attract, retain and develop talent.	"ADB will emphasize maintaining and enhancing staff skills. Staff will be encouraged to undertake training programs, and enhancement of skills and qualifications will be recognized as a factor in promotion criteria. To encourage learning from other institutions, more opportunities will be provided to staff for attachments with international development organizations and research and policy think tanks. To attract, motivate, and retain highly skilled technical staff, a career stream will be developed to allow the m (on a selective basis) to progress to the highest grade levels without having to shift to general management positions" (ADB 2014a, p. 39). At the ADB "We have a system of recording the skills in the – we have a kind of register – autofill questionnaire – what are your strengths and weaknesses and where would you like to have more training? And then every year or twice a year we have a discussion with our boss and we decide what training which would follow in the next few months or year" [#16]  The ADB has policies for recruitment and retention of talented staff. Staff at the ADB also report regular opportunities for training	V
7. Leaders create a dynamic organisational/forum /project culture, making it a desirable place to work.		(PI)
8. The organisation/forum /project is perceive by stakeholders as legitimate.	"Except as otherwise expressly provided in the Agreement, all decisions of the Board shall be made by a majority of the voting power represented at the meeting" (ADB 2003, Section 8 (Voting))  Majority vote provides legitimacy among member states, although:  "The total voting power of each member shall consist of the sum of its basic votes and proportional votes.  (i) The basic votes of each member shall consist of such number of votes as results from the equal distribution among all the members of twenty (20) per cent of the aggregate sum of the basic votes and proportional votes of all the members.	<b>♦</b>

		(ii) The number of the proportional votes of each member shall be equal to the number of shares of the capital stock of the Bank held by that member.  2. In voting in the Board of Governors, each Governor shall be entitled to cast the votes of the member he represents. Except as otherwise expressly provided in this Agreement, all matters before the Board of Governors shall be decided by a majority of the voting power represented at the meeting." (ADB 1966 (updated 1994), Article 33 (Voting)).  Thus voting is not equal, but based on financial interest. Also, in running projects: "our Vietnamese partner, it is the first time we've worked with them, and they don't understand the ADB procedures, and so because we work basically in one way – We're giving you money, and you have to do it this way"  Autocratic approaches tend to reduce perceived legitimacy  Some national government agencies have expressed frustration because of lack of involvement in design aspects of adaptation and health projects (researcher's observation).  Overall, the ADB has legitimacy through transparency (e.g. because processes and procedures are publicly available), but some autocratic implementation methodologies have undermined that legitimacy in some cases.	
3. Resources	1. There are organisational/forum /project personnel exclusively dedicated to health sector adaptation to climate change.	The ADB has health specialists and climate change specialists and environment and health specialists (Susann Roth (Public Health) Ancha Srinivasan (Climate Change Specialist), Gene Peralta (Environmental Health)) but does not appear to have health sector adaptation specialists.	<b>�</b>
	2. Personnel are qualified and have experience in health sector adaptation to climate change.	Kathryn Bowen (consultant, working for Conseil Sante on Health Sector Resilience Strengthening Project) – multiple publications on climate change and health in South East Asia:  Bowen, K. J., F. P. Miller, V. Dany and S. Graham, 2015. The relevance of a coproductive capacity framework to climate change adaptation: investigating the health and water sectors in Cambodia, <i>Ecology and Society</i> , 20(1): 13.  Bowen, K. J., F. Miller, V. Dany, A. J. McMichael and S. Friel, 2013. Enabling environments? Insights into the policy context for climate change and health adaptation decision-making in Cambodia, <i>Climate and Development</i> , 5(4): 277-287.  Friel, S., K. Bowen, D. Campbell-Lendrum, H. Frumkin, A. J. McMichael and K. Rasanathan, 2011. Climate change, noncommunicable diseases, and development: the relationships and common policy opportunities, <i>Annual review of public health</i> , 32(1): 133-147.	<b>V</b>

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3. Personnel are quand have experienc project/program management.	
4. Personnel particily ongoing training programs.	$\overline{\mathbf{V}}$

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5. Personnel performance is appraised (formally or informally) at least annually.	and these note the midpoint of an asset the ADB "We have what are your street wice a year we have months or year" [and the formal policy annually.	nat evaluations a signment lasting f ave a system of rengths and weakn ave a discussion v #16] for consultant ev	re initiated "[a]t to or 12 months or mecording the skills esses and where with our boss and valuations indicate	the expected date nore(ADB 2014b: 1 in the – we have a would you like to have decide what traces consultants and	of the final report.). I kind of register – ave more training? aining which would	rt submission or at the autofill questionnaire — And then every year or d follow in the next few are evaluated at least sed to determine future	<b>√</b>
6. The organisation/forum /project has untied funding.		2 billion in cofina	ncing—a record h	igh for ADB—with		n in operations in 2014 s own resources" (ADB	V
7. There is evidence that the organisation/forum/ project includes a component exclusively focussed on health sector adaptation to climate change.	_	rdic Fund, with so	ome funding from	counterparts/nation		ong Subregion" project (ADB 2015d).	<b>V</b>
8. External funding to the organisation/forum /project has increased over the past 5 years.	"ADB uses operat decisions, and mo	nitor financial rat	ios and parameter	rs" (ADB 2015a: 2)	ial position, make	financial management	
	31 Dec 2015	31 Dec 2014	31 Dec 2013	31 Dec 2012	31 Dec 2011	(ADB 2015a: 4)	
	343	571	469	465	587		
	income, as the ke	•		cial position has f	luctuated over the	The operating e five years 2011-2015,	

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	9. The organisation/forum /project has multiple funding sources.	"Of the total co-financing, \$4.4 billion was obtained through partnerships with official and other concessional financing sources, including bilateral and multilateral organizations, other public agencies, foundations, and corporate social responsibility programs. Financing support from these development partners increased by 15% in the face of global fiscal constraints, from \$3.8 billion in 2013" (ADB 2016b, online).  There is clear evidence of multiple funding sources (co-financing)			
	10 The organisation/forum		Condensed Balance Sheets for Ordinary Capit	tal Resources of the 2015 Financial	
	/project has financial	Report:			
	reserves.	Item	Balance (\$ million)	(ADB 2015a)	
		Ordinary reserve	11,981		<b>I</b>
		Special reserve	322	The 2015 annual	
		Loan loss reserve	215	report shows over	
				12 billion dollars	
	44 7	across three reserve funds.			
	11. The				
	organisation/forum				
	/project has sufficient				
	technological resources				
	(e.g. intellectual property				(PI)
	rights, patents, copyright,				` ,
	software licences etc.) to				
	carry out its climate				
	change adaptation				
	mandate.				
4. Structure,	1. The organisation/forum				
systems and	/project has a low degree				(PI)
processes	of hierarchy (i.e. few				(' ')
	hierarchical levels).				
	2. The organisation/forum				
	/project has a human				
	resource management				
	system that supports the				(PI)
	shaping of organisational				
	culture and staff				
	recruitment, training,				

	development and		
	retention.		
	3. The organisation/forum	ADB's 2013 annual financial report was audited by Deloitte, using audit standards generally acceptably in the	
	/project has a financial	United States of America (ADB 2013a)	
	management system that		│ <b> √</b>
	is internationally	This standard of auditing makes it clear that the adb's financial management system is of international standard	
	recognised.		
	4. The organisation/forum		
	/project applies risk		
	management principles in		(PI)
	its decision-making		
	processes.		
	5. The organisation/forum		
	/project has a centralised,		(PI)
	user-friendly internal data		(PI)
	management system.		
	6. The organisation/forum		
	/project has a user-		
	friendly project/program		
	management system (e.g.		(PI)
	that supports personnel to		
	identify, schedule and		
	track resources etc.).		
1	7. There are mechanisms		
	that support both vertical		
	and horizontal		(PI)
	communication within the		(F1)
	organisation/forum		
	/project		
	8. The organisation/forum		
	/project has internal		(PI)
	dispute resolution		(٢١)
	protocols.		

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3. The organisation/forum /project has equipment, expertise and/or resources (e.g. access to journal articles etc.) for research, or is able to facilitate access to research related resources	"The ADB Library supports the information needs of ADB staff, using a collection of more than 77,000 titles that include books, journals, newspapers, commercial databases, Internet-based publications, and newswires" (ADB 2017b: Online)  This is clear evidence of resourcing for research	$\overline{\mathbf{V}}$
4. The current organisational/ forum/project strategic plan (or a similar document) outlines plans for collaboration with multiple stakeholders on health sector adaptation-related initiatives.	In their operational plan for health (2015-2020), the ADB commits to optimizing "indirect public health outcomes from ADB infrastructure projects by strengthening collaboration between health and infrastructure sectors (primarily transport [road safety], urban [healthy cities], water [water safety], sanitation and energy), as highlighted in Appendix 3' (ADB 2015c: 7) They specifically highlight working with the World Health Organization (WHO): "To measure achievements toward UHC (Universal Health Coverage), ADB is collaborating with WHO on developing monitoring frameworks with performance indicators derived from existing health information systems. These are being developed both regionally and for several countries" (ADB 2015c: 9) This is evidence of collaboration for improving health, and there are links to climate change and health (eg. Water and sanitation), as well as because uhc is likely to build climate change resilience among impacted populations. In addition, documentation for stakeholder meetings for the "Strengthening Resilience to Climate Change in the Health Sector in the Greater Mekong Sub-region" show that "The project team works closely with implementing agencies in each country. In Viet Nam, the implementing agency is the Health Environment Management Agency, which is responsible for the coordination of climate change activities in the MOH. In Cambodia, the implementing agency is the Department of Preventive Medicine, which coordinates climate change-related interventions and is also the implementing agency for CDC2. In Lao PDR, the implementing agency is the Department of Hygiene and Health Promotion. Building on the CDC2 and the proposed GMS Health Security Project, the TA will foster regional knowledge sharing and dialogue on the impact of climate change on health and the harmonization of databases and surveillance systems. Cooperation with the WHO country offices in Cambodia, the Lao PDR, and Viet Nam is sought to strengthen vector surveillance and vulnerability mapping." (Conseil-Sante 201	

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CON	MPONENT 2. Effectiveness of P	Project/Organisation/Forum Initiative – Strengthening Resilience to Climate Change in the Health Sector in the GMS	
1. Needs and goals	1. There is evidence that the project/program /forum initiative is filling an existing need with relation to climate change adaptation.	"Climate change is recognized as a major threat to economic development in southeast Asia, which is one of the most climate at risk regions in the world, in particular, coastal and low-lying regions like the Greater Mekong Subregion (GMS). Rapid infrastructure development including hydropower, roads and new urban areas, as well as the increased mobility of populations, is likely to have an impact on vector ecology and disease incidence. [] In the GMS, the World Health Organization (WHO) estimates that climate change will contribute to about 150,000 deaths annually. Populations are vulnerable to climate-induced health risks because of (i) changes in temperature and rainfall patterns that affect the incidence of vector-borne diseases (e.g. malaria and dengue) and also change in the geographical habitat of the disease vectors; (ii) extreme weather events that cause injuries, deaths, water contamination, and infectious and water-borne diseases; (iii) droughts and heavy rainfall that cause significant reduction in crop yield, that lead to low food security and malnutrition; and (iv) increased risk of heat waves in urban areas, along with forest fires that adversely affect air quality over broad areas and exacerbate the occurrence and intensity of respiratory diseases and heat strokes. [] Cambodia and the Lao PDR have a high burden of vector-borne diseases and in recent years more than 150,000 dengue cases were reported annually. In Cambodia, vector-borne and water-borne diseases (malaria, dengue and cholera) cause significant impact on health outcomes such as an increase in dengue cases. Viet Nam is more vulnerable to climate change due to regular flooding of low coastal areas and frequent typhoons and therefore an increased burden of vector-water and food borne diseases. Diseases related to frequent heat waves such as respiratory infections are increasing in the region. []. Recent regional analyses show that a warmer, more variable climate will have adverse health effects, which significantly will impact o	<b>√</b>
		planning and implementation of climate change programs.	
	2. The adaptation focus of	"we have these three knowledge products on climate change and health, and changing behaviour is certainly	•
	the project/program	something we would like to see, but in the scope of a four year project – seeing that translated on the ground is	
	/forum's initiative could	pretty ambitious – especially knowing the rates of change that we see.	
	be considered	And this is targeted at government officials – we want government officials to understand better, to know better	•
	'transformational' (i.e.	what is going on. And then be able to advocate for themselves – so what change in behaviour do we want to see?	

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the way is frame operate "larger,	we want to see a change in behaviour in the people who are in situations where they could be affected by climate change. But will this project directly lead to that? Not in the course of the project. But if the country identifies as a priority a need for behaviour change, then one of the pilots – we have pilots across 12 test provinces in the three countries – something there could address behaviour change at the community level – so I would say in general the answer is no, but it is a possibility that some of the components of the project could lead to small scale behaviour change" [#13]  The project could lead to small-scale transformations in behaviour, but is not a direct objective of the project "we are looking at four areas in terms of transformation – transformation in terms institutions that we deal with – create new climate change institutions. Then policies – whether it is renewable energy policies, adaptation policies. Integration of DRM in you structures, infrastructures – adaptation concerns into infrastructure etc and technologies – more updated technology transformation – LIDAR technology and other remote sensing in terms of looking at futures. And finally behaviour of the actors – so we want to transform institutions, policies, technologies and behaviour of actors whether it is the communities or whether it is government. But	
	transformation is easy to say but difficult to achieve" [#12]  While transformation is a goal, it is not clear how it will be achieved.	
- I	n is a goal of the organizations in GMS" (ADB 2016c, online)  Reducing vulnerability to health risks is an adaptive measure because it is dealing with health risks as an impact of	<b>√</b>
4. The ir goals re	"The direct costs to health [OF CLIMATE CHANGE] (excluding costs in health-determining sectors such as agriculture and water and sanitation) are estimated to be \$2- \$4 billion per year by 2030 worldwide" (ADB 2016c, online).  **Project documentation acknowledges long-term costs of climate change**  "The urban and rural poor in the GMS have limited adaptive capacity given the existing burden of climate sensitive diseases, poverty, low educational attainment, and inadequate quality of health services. In this context, it will be necessary to identify investment priorities such as for climate resilient infrastructure and capacity building to cope and prevent the effects of climate sensitive diseases including those related to natural disasters and thereby strengthen governments' capacity for planning and implementing national climate change programs" (ADB 2016c: online)  **Project documentation considers infrastructure investment, which in itself is a long-range consideration, and how to ensure climate-sensitive health impacts are considered in government planning.	<b>√</b>

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		you have some extra money you give it to some other project. So it all depends on the awareness of the individual and the readiness of the staff to listen to our ideas on emerging issues like climate change adaptation. So I can say frankly that all over south east asia, despite the fact that the higher level people recognise adaptation as a critical priority, but the lower level people are not yet ready to come and ask, We need this much, we need to borrow or we want to borrow" [#12]	
		"I wasn't closely involved, but normally they have missions and they go around, and they collect interest from the countries and they show them draft proposal or concept note – to which the countries will agree or not, or they will provide inputs. And then they integrate them in the concept paper. And of course, internally when the TA has been approved here, then the whole process again will go back officially to the project and they will have that no objection to the TA before it can start" [#14]	
		" <u>During Project Design</u> Positive feedback about the proposed TA was received during initial discussions with the ministries of health. During fact-finding, a number of agencies/institutions and donor organizations working on climate change and health will be consulted to discuss scope and implementation arrangements" (ADB 2016c: Online)	
		"The participating developing member countries—Cambodia, the Lao PDR, and Viet Nam—were involved in TA preparation and welcome the initiative8"	
		"8 TA fact-finding missions were conducted jointly with the NDF in April–May 2014. ADB will not undertake any activities in the relevant developing member country until receiving a written no-objection" (ADB 2015d: 1)	
		The technical assistance report specifies that the developing member countries which are participating were involved in the ta preparation	
2. Scope	1. The initiative/activity addresses multiple climate or climate-induced vulnerabilities (e.g. vulnerability to sea-level rise, increased sea surface	"Cambodia and the Lao PDR have a high burden of vector-borne diseases and in recent years more than 150,000 dengue cases were reported annually. In Cambodia, vector-borne and water-borne diseases (malaria, dengue and cholera) cause significant impact on health outcomes such as an increase in dengue cases. Viet Nam is more vulnerable to climate change due to regular flooding of low coastal areas and frequent typhoons and therefore an increased burden of vector-water and food borne diseases. Diseases related to frequent heat waves such as respiratory infections are increasing in the region" (ADB 2016c, online).	V
	and air temperature, changing rainfall patterns etc.).	The initiative considers climate sensitive diseases, sea-level rise, and extreme weather events (typhoons and heat waves)	

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	2. The initiative/activity addresses multiple non-climate-induced vulnerabilities (e.g. poverty, deforestation etc.).	"Recent regional analyses show that a warmer, more variable climate will have adverse health effects, which significantly will impact on the poor, particularly women and children. Climate change will strain health resources of countries that already face public health challenges, poor infrastructure, poverty, and inequality. The urban and rural poor in the GMS have limited adaptive capacity given the existing burden of climate sensitive diseases, poverty, low educational attainment, and inadequate quality of health services. In this context, it will be necessary to identify investment priorities such as for climate resilient infrastructure and capacity building to cope and prevent the effects of climate sensitive diseases including those related to natural disasters and thereby strengthen governments' capacity for planning and implementing national climate change programs. Women and children are disproportionately more vulnerable than men to impacts of climate change. However, efforts to integrate gender perspectives in health adaptation programs, plans, and policies have also been limited" (ADB 2016c, online).  The initiative considers impact of poverty and education levels on adaptive capacity, as well as quality of health services, and resultant necessary investment planning	<b>V</b>
3. Logic, design and adequacy	1. The logic/design of the initiative/activity's climate change adaptation components is evidence-based and contextualised.	"Changes in temperature and rainfall patterns are increasing the vulnerability of populations to the incidence of vector-borne diseases. A higher risk of heat waves in urban areas reduces air quality and exacerbates the occurrence of respiratory infections. The pace of urbanization and population mobility is in turn compounding these diseases.9 Strengthening the resilience of national health systems is a priority for Cambodia, the Lao PDR, and Viet Nam to achieve sustainable economic development. In the Greater Mekong Subregion (GMS), health has been identified as a priority sector within national adaptation plans" (ADB 2015d: 2).	
		"Cambodia and the Lao PDR have a high burden of vector-borne diseases and in recent years more than 150,000 dengue cases were reported annually. In Cambodia, vector-borne and water-borne diseases (malaria, dengue and cholera) cause significant impact on health outcomes such as an increase in dengue cases. Viet Nam is more vulnerable to climate change due to regular flooding of low coastal areas and frequent typhoons and therefore an increased burden of vector-water and food borne diseases. Diseases related to frequent heat waves such as respiratory infections are increasing in the region" (ADB 2016c: Online).  The design of the project is contextualised and evidence based in that it takes into account conditions in the three respiratory and builds an arguing project in the region.	
	2. There is evidence that the logic/design of the initiative/activity's climate change adaptation components is an effective	countries, and builds on previous projects in the region.  The project targets three outputs and one outcome. The outputs are:  "Improved integrated surveillance for climate change related impact  Strengthened institutional and human resource capacities to climate change adaptation in the health sector	

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	means to achieve its objectives.	Climate change adaptation is integrated in national and regional health operation plans" (ADB 2016c: Online)	
		The targeted outcome is:  "Improved government capacity to cope with adverse health impact of climate change" (ADB 2016c: Online).	
		Developing HR and institutional capacity is an important component of increasing adaptive capacity: e.g. "regional organisations should prioritise capacity-building for risk reduction within national governments over discrete project implementation, at least over the next few years. As one Caribbean interviewee noted, regional organisations can [and should] lead on "building capacity to reduce our [the region's] exposure to risk" (interviews, January 2015)" (Robinson and Gilfillan 2017).	
4. Resources	1. Personnel are assigned exclusively to the initiative/activity.	Review of the Techncial Assistance Report: Strengthening Resilience to Climate Change in the Health Sector in the GMS (ADB 2015d) indicates that at the national level, public health experts, deputy team leaders and epidemiologists will be employed on a full-time basis (other positions are noted as intermittent, and these ones specify the number of person-months only: "Public health experts and deputy team leaders (estimated at 90 person-months; for three countries)" and "Epidemiologists (estimated at 108 person-months; for three countries)." (ADB 2015d: 13).  This evidence is suggestive of personnel assigned exclusively to the initiative, it is not conclusive	$\Diamond$
	2. Personnel involved with implementing the initiative/activity's adaptation components have qualifications and experience in climate change adaptation.	Kathryn Bowen: "Kathryn is a Senior Research Fellow working at the nexus of global environmental change, global health and governance issues. She holds a PhD (ANU), MSc (International Health) (Humboldt & Frei Universities, Berlin) and BA/Psyc (Hons) (Newcastle)" (ANU 2016, online)  "Kathryn consults to the WHO on climate change and health, as well as other national and international organisations. She was a researcher on a four-year study funded by AusAID, which investigated the factors that influence the development of public health adaptive capacity in the Asia Pacific. Kathryn recently completed a review of the member countries within the South East Asian Region of the WHO - focusing on climate change activities and preparations for future programs and policies" (ANU 2016, online).  Dr Bowen is a project consultant (Conseil-Sante 2016), and has adaptation and health experience and qualifications	V
	3. Personnel involved with implementing the initiative/activity's adaptation components have qualifications and experience in	Ingo Neu worked as:  "Chief of Party Company Name: International Medical Corps Dates Employed Jan 2012 – Oct 2012 Employment Duration10 mos Location: Indonesia, Philippines, Ghana, Uganda, Tanzania, Kenya	V

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project/program	Taking over as Chief of Party of the USAID funded PREPARE project for the remaining 9 months of a three years	
management.	project in Asia and Africa, leading the project technical and administrative teams in the USA as well as in the respective countries.	
	<ul> <li>Supported governments to develop pandemic and multihazard preparedness &amp; response plans of their essential service sectors (banking &amp; finance; telecommunication; transportation; food and water; health; etc.), bringing together public and private service providers.</li> </ul>	
	<ul> <li>Developed sector plan templates that were subsequently used by all countries to develop their sectoral preparedness plans.</li> </ul>	
	<ul> <li>Established multistakeholder partnership networks including public and private service providers, donors, PACOM, AFRICOM, NGOs, etc.</li> </ul>	
	Organised several high-level national workshops and simulation exercises in all countries.	
	<ul> <li>Organised several high-level regional (ASEAN) and bi-regional (ASEAN-EAC) workshops and simulation exercises.</li> </ul>	
	All countries developed and tested sectoral preparedness & response plans for pandemics, which can also be adapted and used for other hazards" (Neu 2017: Online).	
	This role has evidence of several project management components: organising workshops, establising partnership networks, support governments to developed preparedness and response plans.	
4. There is evidence that there are sufficient	The project web-site mentions the need for 181 person-months of consultants for the TA (ADB 2016c)	
personnel to achieve the objectives of the initiative/activity.	This indicates the project was planned to have sufficient human resources to achieve the outputs and outcomes	<b>Y</b>
5. There is evidence of sufficient funding for the	Funded by Nordic Development Fund US\$4.36 million (ADB 2015d).	
initiative/activity's climate change adaptation components.		Y

		Appendix 2 9	
		COST ESTIMATES AND FINANCING PLAN (\$'000)	
		ltem Amount	
		Nordic Development Fund <sup>a</sup>	
		1. Consultants	
		a. Remuneration and per diem	
		i. International consultants 1,060.0 ii. National consultants 470.0	
		b. International and local travel 140.0	
		c. Reports and communications 60.0	
		Asian Development Bank's administration fee     250.0	
		3. Resource persons <sup>b</sup> 130.0	
		4. Equipment <sup>c</sup> 450.0	
		5. Seminars, workshops, and conferences <sup>d</sup> 530.0	
		6. Training 470.0 7. Diagnostic studies and surveys 75.0	
		8. Reports and dissemination 25.0	
		9. Miscellaneous administration and support costs <sup>e</sup> 240.0	
		10. Contingencies 460.0	
		Total 4,360.0	
		Notes: (i) The technical assistance (TA) is estimated to cost \$4,410,000, of which €4,000,000 will be financed by the Nordic Development Fund (NDF) on a grant basis. The NDF will provide funds in euros (€). The governments of Cambodia, the Lao People's Democratic Republic, and Viet Nam will provide counterpart support in the form of staff, office accommodation and utilities, and other in-kind contributions.  (ii) The amount of €4,000,000 is subject to currency fluctuations based on the date of conversion. <sup>a</sup> Administered by the Asian Development Bank. This amount also includes audit costs, bank charges, and a provision for foreign exchange fluctuations (if any) to the extent that these items are not covered by the interest and investment income earned on this grant. <sup>b</sup> Includes the recruitment of experts and scientists from universities and research institutes to lead advocacy events and activities related to climate modeling. <sup>c</sup> Includes office equipment, information and communication technology hardware and software, and health-related goods. Equipment will be turned over to government counterparts once the TA is completed. Office equipment to be used for project management will include computers and printers.  d Includes logistic arrangements, venue rentals, travel of resource persons (including Asian Development Bank staff (ADB 2015d: 9).  The cost estimate in the technical assistance report is broken down into the major elements including wages,	
		· · · · · · · · · · · · · · · · · · ·	
		equipment, events and training, administration and a contingency amount.	
· · ·	4 = 1	The project budget is planned, and has been funded by the Nordic Development Fund, indicating sufficient funding.	
5. Technical	1. There is evidence that	"One of the things about ADB projects that is both good and bad is that there is often a lot of flexibility, TA is about	^
efficiency	the initiative/activity	building capacity, and there are a lot of different way to build capacity and some people equate it with training –	<b>(4)</b>
	provides value for money	so if the government needs help building its capacity in skill X we will provide training of x number of days for this	V
	(cost vs. outputs).	number of participants, and then we will tick the box. But, I think, with this project, again it could be carried out	

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		that way, it could be a simple train them in this and train them in that and then we will have achieved our objectives. But we are looking at a more holistic way of approaching it, we are trying to build capacity for the long term and looking at the needs and the political will is as well for the capacity building. So I think the modality allows for it. But I think with somebody who just wanted to tick the boxes it could be implemented in a different way that did not build the capacity as effectively as we are planning to do" [#13]  This could be argued either way – this respondent is saying while it is more difficult in the short-term, to focus on capacity building including elements of political will and assessing needs will provide more value for money in the	
6. Implementation	1. There is evidence that the initiative/activity's climate change adaptation components have been implemented as proposed.	"Overall, despite the fact that there are delays, a lot of them are around administrative issues, because for example, VIHEMA, our Vietnamese partner, it is the first time we've worked with them, and they don't understand the ADB procedures, and so because we work basically in one way – We're giving you money, and you have to do it this way – we can see the difference between Cambodia and Laos who have worked with us before – these agencies have worked with us, so when we say, Ok, we want you to set up the advance payment facility, they say, Ok, and a week later we have all the documents. But Vietnam is like, We're not allowed to do that. Whereas we have advance payment facilities with many other agencies in Vietnam, but they haven't done it before, so they are not sure about the procedures and what sort of authorisations they need, and so it is a lot more hand holding, so we have to build that capacity as well to catch them up to the Cambodia and Laos agencies"	
		"And this is the ADB one, and it is funded, but whatever has to take place, the flag hasn't dropped, and the project hasn't [actually launched] Usually you find out, there would be an inception workshop, something would take place. I've seen tenders are out for the individuals that will make the project work. [] \$4 million over three years, but again, that's over three countries" [C#07 (September 2015)]  "The TA will be implemented from 1 August 2015 to 31 December 2018" (ADB 2015d: 5), noting the comments from C#07 above regarding inception workshops, the inception workshop was not run until August 2016 (Conseil-Sante 2016), 12 months later than planned.	×
7. Monitoring and evaluation	1. There is evidence that the initiative/activity is internally monitored and evaluated.	Given the project inception occurred 12 months later than planned, adaptation components cannot have been implemented as planned during this 12 month period.  "We do an internal project evaluation at the end – it is called a TA completion report.  These completion reports are both [about accountability and looking forward] and also it depends on what the topic is – because in this kind of project we are trying to move forward the climate change and health agenda, so reflections and experience would help us understand how we need to move forward with the climate change and health pipeline" [#13]	×

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	1		
		There is no date listed for a last review mission for the project on the project website (which as last updated on 30 March 2017) (ADB 2016c: Online).  Under the Heading "Project Outcome" on the project website there is no "Progress Towards Outcome" listed, nor was there any "Implementation Progress" listed.	
		The Quote from [#13] together with a lack of evidence on the project website indicate a lack of internal monitoring of this project.	
	2. There is evidence that the initiative/activity is externally monitored and evaluated.	"We have donor reviews, but not formally- so the donor will participate in events, and be interested in certain dimensions and they will then provide feedback, but ADB typically doesn't have an external review, although we do have our own independent evaluation department, but they will not review every single ADB financed projects, they will pick randomly after project completion, and then evaluate the project" [#13]	$\Diamond$
		[#13] says there are informal donor reviews, and there maybe independent evaluations by the adb's independent evaluation department following project completion.	
8. Sustainability	1. There is evidence of sustained outputs from the initiative/activity.	With the lack of progress to date on this project, there is no evidence of sustained outputs	(NE)
		COMPONENT 3. Output Effectiveness	
1. Goal attainment	1. There is evidence in the most recent annual report or evaluation that the climate change adaptation and health-related objectives of the organisation/project/foru m are being achieved.	The ADB's 2017 Annual Review includes a review of major 2016 reports: "Lao People's Democratic Republic. The validation of the CPS [Country Partnership Strategy] final review covers 2012–2016. ADB's \$510 million support for lending and nonlending operations was used mostly in ANR [Agriculture, Natural resources and Rural development], education, energy, and water supply and municipal services. Support to ANR resulted in improvements in rural productivity and food security. Ongoing Greater Mekong Subregion interventions in the same sector are likely to contribute to increasing climate change resilience. ADB support also contributed to increasing access to safe water supply and sanitation; better quality secondary education and technical and vocational education and training; and electricity, including connection of poor households to the grid" (IED 2017: 67).	<b>V</b>
		Food security reduces health impacts such as malnutrition, and this is linked to climate change resilience in this evaluation.	

		Increasing access to safe water and sanitation also has direct health benefits and there are clear links to climate change – sea level rise, vector- food- and water-borne diseases, which are well documented in ADB publications. Higher quality education is also linked to beneficial health outcomes as (for example) understandings of the importance of good hygiene practices become better developed.	
2. Research and knowledge management	1. The organisation/project/ forum produces and/or publishes research that is relevant to climate change adaptation at least annually.	"ADBI Library Although we are not a lending library for the general public and cannot satisfy individual requests for copies of our holdings, our collection is available as a bibliographic search tool for interested scholars, practitioners, and the general public. Access the ADBI library collection.  ADBI is a participating member of the collaborating network of the Japan Special Library Association.  Many ADBI publications are freely available for download.  Printed copies of ADBI publications are available through the Brookings Institution Press, our worldwide distributor, and from ADB Depository Libraries" (ADBI 2017: Online).	
		A search of the ADB library for the terms "climate change" and health returned 16 items with dates (chronologically): 1998, 2008, 2009(x2), 2010, 2011(x2), 2013 (x3), 2014(x2), 2015(x2), 2017, n.d.(x1). This is of 447 items returned from a search for "climate change". Health determining sectors return more items – eg. "climate change" and "food security" returns 12 items.  This search does not return research conducted as part of ADB projects, for example it does not return the "Climate Change Impact and Adaptation Study in The Mekong Delta – Part A (Final Report): Climate Change Vulnerability & Risk Assessment Study for Ca Mau and Kien Giang Provinces, Vietnam" (Mackay and Russell 2011), which included a section on health in Ca Mau Province.	
		The (almost) annual publications available through the adb library, combined with additional research conducted through adb technical assistance projects indicates annual publication of adaptation and health research.	
	2. The organisation/project/ forum makes climate change adaptation-relevant research publicly available.	"And it (ADB Library) is always for the public. It is easy, it is open – you can visit the library too, and ask for information, and also do research there. But if you know the title or the key words, it is out there in the public internet – it is not inside ADB website (Intranet). And then all of our monitoring reports, documents are also accessible to everyone – as long as you know the titles – you can get them" [#14]  The climate change and health related publications, combined with the above evidence of openly accessible library and report storage means it is publicly available.	$\overline{\mathbf{V}}$
3. Collaboration and advocacy	1. There is evidence that the organisation/project/ forum collaborates with multiple stakeholders to	For the Health System Resilience project, "The regional inception workshop took place on 4-5 August 2016 in Hanoi. Attendees from relevant government agencies in Cambodia, Lao PDR, and Vietnam, as well as representatives from development partners and NGOs in the region, attended and contributed to discussions about the project's direction" (ADB 2016c, online).	V

	undertake climate change adaptation and health-related activities.	This project involved stakeholders from multiple organisations. Researcher attended the stakeholder meeting on the 3 <sup>rd</sup> august, and there were attendees from the country governments, academia and ngos.  "you can look up in the ADB website – and it's publications are – it has a lot of public information that is jointly collaborated with other NGOs and agencies" [#15]  Interview evidence of collaboration with other agencies to produce publications.	
	2. The organisation/project/foru m advocates for political, financial and/or other climate change support for its Member Countries in various fora at different	"So we are looking at four areas in terms of transformation – transformation in terms institutions that we deal with – create new climate change institutions. Then policies – whetehr it is renewable energy policies, adaptation policies. Intergration of DRM in you structures, infrastructures – adaptation concerns into infrastructure etc and technologies – more updated technology transformation – LIDAR technology and other remote sensing in terms of looking at futures. And finally behaviour of the actors – so we want to transform institutions, policies, technologies and behaviour of actors whether it is the communities or whether it is government" [#12]	
	scales.	"In the Greater Mekong Subregion (GMS), health has been identified as a priority sector within national adaptation plans. Support to national health systems includes enhancing existing surveillance systems, human resource development and identifying future health infrastructure investments to help build capacity to improve tracking of disease and coordinate response at the national and regional level" (ADB 2015d).	$\checkmark$
		The first example shows the ADB advocating for transformations in institutions, policies, behaviours and technologies.  The second example shows the ADB assisting to identify climate resilient health infrastructure investment opportunities.	
4. Education and training	The organisation/project/foru m undertakes climate change adaptation stakeholder and/or public awareness activities.	For the Health System Resilience project, "The regional inception workshop took place on 4-5 August 2016 in Hanoi. Attendees from relevant government agencies in Cambodia, Lao PDR, and Vietnam, as well as representatives from development partners and NGOs in the region, attended and contributed to discussions about the project's direction" (ADB 2016c, online).  This is an example of a climate change adaptation stakeholder activity	V
	2. The organisation/project/foru m develops and/or facilitates the implementation of training programs for stakeholders	"Output 2: Human resource skills in coping with climate change adaptation in the health sector strengthened. The TA will support workforce development by helping to ensure the training of a new generation of competent, experienced public health staff to respond to the threats posed by climate change and incorporate mainstream climate concerns into health policies and programs. Activities include (i) development of technical guidelines for adaptation in the health sector based on existing modules, (ii) training on field epidemiology and disease surveillance related to climate change adaptation, and (iii) enhanced emergency preparedness for rapid response and recovery from extreme weather events. At the local level, community groups, including women's groups, will	V

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	in issues related to climate change adaptation.	need to be involved to strengthen local public health interventions, which will increase community resilience and emergency preparedness"	
		This ta (strengthening health sector resilience to climate change in the GMS) has a goal of training public health staff for health sector adaptation, with field epidemiology and disease surveillance specified as particular training areas.	
5. Specialised advisory services	1. The organisation/project/foru m provides specialised climate change adaptation-related advice to Member Countries and/or other stakeholders.	"A. International Consultants Expert on climate change modeling (estimated at 4 person-months, intermittent). The expert must have at least 8 years of experience on climate modeling and be familiar with geographic information systems. The expert will develop a regional model for examining potential health impacts from climate change, with more detailed information for the three countries covered under the TA. The model should predict health impacts of climate change at 5, 10, and 20 years for consideration in health planning and in the prioritization of adaptation actions for population health. The model should be transparent, incorporate a geographic information system, be based on open source or commonly available software, and be easily tested and updated. The expert will determine the best institutional home for public access to the model (e.g., academic or research institutes) given underlying capacities and interests, and the expert will work together in climate modeling development to build lasting capacities to support MOH interests" (ADB 2015d).  There is clear evidence of specialised climate change adaptation and health-related advice specified for this ta.	V

## Appendix 6: Supplementary references (for appendices to Chapters 5 and 6)

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