Universität Hamburg

euromaster HAMBURG

Master Thesis

Prepared for the Master of Arts in European Studies

The European Union Global Climate Change Alliance in the Pacific

Submitted by:	Annemarie Kunz annemarie.kunz@yahoo.de
Date:	25.07.2014
1st Supervisor:	Prof. Dr. Scheffran, Jürgen Institute of Geography, University of Hamburg
2nd Supervisor:	Prof. Dr. Aisbett, Emma Department of Economic and Social Sciences, University of Hamburg

Abstract

It is widely recognised that the Pacific Small Island Developing States are highly vulnerable to climate change impacts. The Intergovernmental Panel on Climate Change (IPCC) coined the term 'disappearing islands', which highlights that the small island states in the Pacific will face extreme environmental and development challenges, due to a combination of natural and societal factors. The islands' high vulnerability is a function of their exposure to climate impacts, their sensitivity to climate change, low resilience and adaptive capacity. Pacific leaders agree that climate change is the greatest threat to their region and are calling for international help in adaptation funding.

The Global Climate Change Alliance (GCCA) was established by the European Union (EU) in 2007 to strengthen dialogue, exchange of experience and cooperation on climate change, mainly with Least Developed Countries and Small Island Developing States. There are two regional and various national projects, which are conducted by national governments and regional organisations as the University of the South Pacific (USP), the Secretariat of the Pacific Community (SPC) and the Secretariat of the Pacific Regional Environment Programme (SPREP).

This thesis seeks to investigate the motivation of the EU to invest in the Pacific region, but more importantly, to gather information about the appropriateness, effectiveness and sustainability of EU-GCCA support for climate change adaptation in the Pacific. Questionnaires were sent to experts from around the world, particularly in the Pacific.

In general, a positive trend could be observed: participants outlined that the GCCA adaptive measures have so far been appropriate and are trying to involve the respective communities in decision-making as much as possible. A measurement of the projects' effectiveness is not yet feasible, as most are still in the implementation phase. Sustainability is hoped for.

Contents

Abbreviations and Acronyms

ACP	African, Caribbean and Pacific States
AOSIS	Alliance of Small Island States
CC	Climate Change
CCA	Climate Change Adaptation
CFU	Climate Funds Update
CLISEC	Research Group Climate Change and Security
COP	Conference of the Parties
CROP	Council of Regional Organisations of the Pacific
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
ENSO	El Niño Southern Oscillation
EC	European Commission
EU	European Union
FAO	Food and Agriculture Organisation
FSF	Fast-Start Finance
FSM	Federated States of Micronesia
GCCA	Global Climate Change Alliance
GHG	Greenhouse Gas
GIZ	Gesellschaft für Internationale Zusammenarbeit
ICC	In-Country Coordinator
ICZ	Intertropical Convergence Zone
IPCC	Intergovernmental Panel on Climate Change
LDC	Least Developed Country
LMCCA	Locally Managed Climate Change Adaptation
MDG	Millennium Development Goal
MoU	Memorandum of Understanding
NAPA	National Adaptation Programme of Action
NGO	Non-Governmental Organisation
NPAC	National Project Advisory Committee
OECD	Organisation for Economic Cooperation and Development
PACE-SD	Pacific Centre for Environment and Sustainable Development
PICCAP	Pacific Islands Climate Change Assistance Programme
PCCR	Pacific Climate Change Roundtable
PIC	Pacific Island Country

PIF	Pacific Islands Forum
PIFACC	Pacific Islands Framework for Action on Climate Change
PIFS	Pacific Islands Forum Secretariat
PNG	Papua New Guinea
PSIDS	Pacific Small Island Developing State
R&D	Research and Development
RIM	Republic of the Marshall Islands
ROM	Results Oriented Monitoring
SIDS	Small Island Developing State
SOPAC	South Pacific Applied Geoscience Commission
SPC	Secretariat of the Pacific Community
SPCZ	South Pacific Convergence Zone
SPREP	South Pacific Regional Environment Programme
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
USP	University of the South Pacific
WMO	World Meteorological Organisation
WPM	West Pacific Monsoon

List of Figures

List of Maps

List of Tables

1 Introduction

> *In recent decades, changes in climate have caused impacts on natural and human systems on all continents and across the oceans.* (IPCC WGII 2014, 6)

1.1 Problem Diagnosis

The scientific community recognises climate change[1] as one of the main challenges of the twenty-first century. One of its principal causes is increasing concentrations of greenhouse gases in the atmosphere which in turn result in higher air temperatures, higher sea surface temperatures, a rise of sea levels, and changes in precipitation. In addition, the intensity and frequency of tropical cyclones and other climate related natural disasters are likely to increase. (Yamamoto and Esteban 2014, 1) These threats have been documented by the Intergovernmental Panel on Climate Change (IPCC), which recently published its Fifth Assessment Report on climate change impacts, mitigation and adaptation.

Although contributing the least to it, the Small Island Developing States (SIDS) in the Pacific region[2] are recognised to be among the most vulnerable places to climate change. Climate change is likely to change the ecology of SIDS drastically and threaten their existence. (Gillespie 2003, 113, 128) The expression 'disappearing islands' emerged out of the IPCC report because they are especially vulnerable to sea-level rise as a result of climate change. (Cameron 2011, 873)

Since the 1990s, the media around the world commenced to report about these islands in the Pacific and identified them as the first potential victims of large-scale climate change. (Yamamoto and Esteban 2014, 106) They were operationalised as evidence for climate change actually taking place and fuelled a debate on who is authorised and responsible to save them and their inhabitants. Additionally, some criticise that climate change might distract from other development challenges which need to be addressed as well. As the effects of climate change will probably be felt for the next millennium even if all human-related greenhouse gas emissions stopped today, it must factor in development assistance. (Kelman 2013, 1)

---

[1] Climate change refers to a change in the state of the climate that can be identified by changes in the mean and/or the variability of properties, and that persists to an extended period, typically decades or longer. It may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use. (IPCC WGII 2014, 4)

[2] In this thesis, the Pacific region includes the following 15 countries: Cook Islands, Fiji, Federated States of Micronesia, Kiribati, Nauru, Republic of Marshall Islands, Palau, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, Tonga, Tuvalu and Vanuatu.

Climatic changes vary across the diverse region, but extreme events such as floods or droughts are common outcomes everywhere. Climate change sets off a chain of interrelated impacts and exacerbates tensions over land, food and energy prices, and creates migratory pressures and desertification. Entire states could become uninhabitable or disappear, resulting in displacement of populations and migration. (EC 2012a, 5) As the habitability of the territories themselves is threatened, territorial integrity and sovereignty of Pacific states might be endangered too. (Maas and Carius 2012, 652)

In general, poor countries have to bear a disproportionate burden from climate change as they are unable to conduct adaptive measures without support.

> *[D]eveloping countries... have lesser capacity to adapt and are more vulnerable to climate change damages, just as they are to other stresses. This condition is most extreme among the poorest people.* (IPCC 2001, 8)

SIDS have a limited adaptive capacity due to limited access to technology, education and other resources. Further challenges are remoteness, high population densities, resource exploitation and relative size. (Weir and Orcherton 2013, 61–63) Thus, they are increasingly recognised in international environmental law. (Gillespie 2003, 107)

After the setback of international mitigation efforts at the United Nations Framework Convention on Climate Change (UNFCCC) conference in Copenhagen in 2009, adaptation to climate change has gained increasing attention. (Heuson et al. 2013, 2) As it has been reluctantly acknowledged that emissions reduction will probably not decrease at the rate necessary to prevent climate change, adaptation has become a more visible and pressing option in the last decade. Adaptation is increasingly considered an important factor to reduce vulnerability to climate change. (USP 2011, 8, 9) This is evident from scientific publications assessing climate change impacts, vulnerability and adaptive possibilities which more than doubled between 2005 and 2010. (IPCC WGII 2014, 4)

Under the UNFCCC and the Kyoto Protocol, provisions exist on assisting the countries that are the most vulnerable and least able to adapt. Various developed states and the European Union (EU) who are parties to the UNFCCC pledged to support the most vulnerable states to mitigate and adapt to climate change as an important part, in addition to and also as a precondition for development. The majority of climate change adaptation funding in the Pacific comes from Australia, the EU, Germany, Japan, Korea, the Unites States, China and the World Bank through the United Nations Development Programme (UNDP). (USP 2011, 22)

According to the European Commissioner for Development, Andris Piebalgs,

> *Pacific Islands are the first victims of climate change, which hampers their development and threatens peoples' lives. As the largest donor, the EU is taking upon its global responsibilities and will continue to express its solidarity with the poor and vulnerable citizens of these small islands.* (EC 2012b)

The EU was comparatively inactive in the region since the end of colonialism, but has renewed interest and developed its first ever Strategy for the Pacific in 2006. The islands belong to the African Caribbean and Pacific Group of States (ACP), a group of developing countries which signed an agreement on trade and development aid (the Cotonou Agreement) with the EU. (EC 2006) Since 2009, the EU is also lending support for climate change related issues to the region; which is at the core of the EU-Pacific partnership. This thesis focusses on the support of the Global Climate Change Alliance (GCCA).

The GCCA was established by the EU in 2007 to strengthen dialogue, exchange experiences and boost cooperation on climate change, mainly with Least Developed Countries and Small Island Developing States. The Initiative is financed through the EU budget, the 10th European Development Fund and EU member states. €38 Million have so far been allotted to projects in the Pacific, which is about 17% of the total €230 Million spent by the GCCA. There are two regional projects and various national, which are conducted by national governments and regional organisations such as the Pacific Islands Forum (PIF), the Secretariat of the Pacific Community (SPC) and the Secretariat of the Pacific Regional Environment Programme (SPREP). (GCCA 2012a)

One of the regional projects is called *Support the EU-GCCA through capacity building, community engagement and applied research*, includes 15 states and is implemented by the Pacific Centre for Environment and Sustainable Development (PACE-SD) of the University of the South Pacific (USP). It aims at developing and strengthening the region's capacity to adapt by improving the level of understanding of climate change. The other regional programme, *GCCA: Pacific Small Island States*, implemented by the Secretariat of the Pacific Community, supports the governments of nine of the smaller island states. Its main objective is to bring climate change adaptation into the mainstream. The national projects deal with Vanuatu, Papua New Guinea, Samoa and the Solomon Islands. (GCCA 2012b; GCCA 2012c)

The importance and topicality of the issue is demonstrated by the international attention the Pacific SIDS and other regions vulnerable to climate change receive. 2014 was declared the international year of Small Island Developing States, to mobilise international interest and support for sustainable development in these countries. Non-SIDS United Nations (UN) member states are needed to pay attention to the issues of SIDS, and especially to climate change and sea-level rise. Thus, the third UN Conference on Small Island Developing States is taking place in Samoa in the beginning of September 2014. (SIDS Unit, UNDESA 2013, 1, 2; UNDESA 2014)

Unfortunately, not much literature evaluating the GCCA and its impact is currently available. There are publications of the EU, cooperating institutions and organisations on climate change vulnerability and adaptation in the Pacific in general, but few going into detail. This thesis seeks to provide an introduction to the work of the GCCA in the Pacific and an overview of the opinions of experts from the field on various aspects of its work.

1.2 Research Questions

The objective of this master thesis is to gather insights into the work of the GCCA in the Pacific and its image among experts from the field of climate change adaptation. Most importantly, it enquires into the motivation of the EU to invest in the Pacific region, the effectiveness, appropriateness and sustainability of the GCCA's adaptive activities. Thus, the guiding questions are:

- What is the opinion of experts from the field of climate change adaptation on the adaptation support of the GCCA in the Pacific?
- What is the motivation of the EU to finance climate change adaptation in the Pacific?
- Who benefits from GCCA support?
- Are the projects of the GCCA appropriate?
- With whom does the GCCA cooperate in the region to implement its projects? Which social networks are created through the work of the GCCA?
- How does the GCCA influence regional and national actors in the Pacific?
- Are the projects of the GCCA effective? Do people benefiting from GCCA support become more resilient to climate change?
- Are the projects of the GCCA sustainable? Will they be pursued by local people?

1.3 Structure

This thesis commences describing the applied methodology and its limitations. The third chapter gives a brief overview of international climate change negotiations and introduces the climate change related terms vulnerability and adaptation. Following, the physical geography, social and economic characteristics and key impacts and vulnerabilities of the Pacific region are described. The fifth chapter comprises an elaboration of Pacific-EU relations in general and on climate change in detail, and continues with an introduction of the GCCA. The initiative's regional and national projects are presented and evaluated in as much detail as the available sources allow. Subsequently, the empirical results of the conducted questionnaires are presented and then discussed in the seventh chapter. Finally, the thesis is summed up with a conclusion.

2 Methodology

2.1 Overview

In this chapter, the methodology applied in this study to answer the research questions is discussed. One aim is to examine the opinion of experts in climate change adaptation worldwide and stakeholders in the region towards the GCCA. Another is to investigate into the motivation of the EU to support the Pacific region in this issue; and a third one is whether the initiatives work is seen effective, inclusive and sustainable.

To acquire this information, a first theoretical working phase consisted of literature research on vulnerability, adaptation, international climate change negotiations, the region itself, on key vulnerabilities, adaptive measures, the European Global Climate Change Alliance and its programmes in the Pacific. Sources covered internet research, research articles in peer-reviewed journals, political statements, newspaper articles, official EU documents, reports of regional organisations in the Pacific, reports of the EU, the GCCA, the IPCC and international organisations such as Oxfam.

As a lack of opinion on GCCA work persists in available resources, a questionnaire was conducted in a second phase. Initially, this phase was supposed to consist solely of a qualitative questionnaire, so as to enable people to individually state their opinions, perceptions and suggestions on the work of the GCCA. Thus, a first round of 50 questionnaires with the offer to provide either written answers or take part in a Skype interview[3] was sent around. As only few people participated and sent written answers, a second quantitative questionnaire was developed on the same core questions and sent around two weeks later. The purpose of this change of methodology was to enable a methodological comparison and attract more participants to acquire a comprehensive trend picture.

So far, there has been no extensive official study on this EU initiative, which is fully operating in the Pacific region since 2011. Therefore, this thesis provides an introduction to the work of the GCCA initiative in the Pacific region and tries to give a first impression of opinions on its work. However, to properly assess its success, a field study would be necessary after more years have passed, so as to be able to evaluate whether Pacific countries have become more resilient. Following, the selection process of participants is illustrated.

[3] No one considered a Skype interview.

2.2 Selection of Participants

Qualitative and quantitative questionnaires were sent out via e-mail to collect data of expert opinions on the research questions. Participants included a variety of people in contact with the work of the GCCA in the Pacific and climate change adaptation in general. These people are working for NGOs, international organisations, EU institutions, governments, research institutions and regional organisations worldwide and in the Pacific. Thus, a comprehensive trend picture from various angles should be established.

The search for experts was conducted through internet research on academic and professional institutions focussed on climate change adaptation and through tracking down authors of relevant sources. In the first round, 50 experts were contacted with an exposé of the thesis and the qualitative questionnaire. Eight questionnaires were answered, which was considered to be an amount too small to say something about a trend of opinion among experts on the issue. The low response is partly due to lack of knowledge on the GCCA especially in Europe[4], partly due to lack of time. One person refused to answer the questionnaire because the questions were too subjective and politically sensitive.

Therefore, a second quantitative questionnaire was developed, which would be much less time consuming. It was sent around to the experts of the first round who gave 'no time' as reason for lacking answers and those who did not respond. After further research, another 50 experts were contacted and received both questionnaires. This time, response was much higher, so that in the end, 25 quantitative responses were received.

Thus, in total, 33 answers could be collected from 28 people (as five answered both), consequently some more detailed and fruitful than others, due to difference in knowledge, origin and position. 27 of 100 contacted experts declined participation, the rest did not respond at all. It could generally be noticed, that experts on climate change adaptation in Europe and other parts of the world not working in the Pacific region, have a different focus of research. Thus, most participants either originated from the Pacific or were based there because of their work.

Participants come from SPREP, Gesellschaft für Internationale Zusammenarbeit (GIZ), USP, Pacific Islands Forum Secretariat (PIFS), HAW-HH, SPC, Germanwatch, and other institutions (see Annex A). There is an obvious bias

[4] In Europe, research on climate change adaptation does not focus on the Pacific region.

towards experts based in the Pacific region. Additionally, the major input in literature research as well as in the questionnaires comes from the regional project *Support to the EU-GCCA through capacity building, community engagement and applied research*, as this is the project best documented online, with sufficient reports and information. Additionally, many In-Country Coordinators (ICCs) of that project answered the questionnaire. Other projects did not offer contact information on people working directly in the project sites. Upon finalisation of the thesis, a summary of results will be sent to all participants.

2.3 Structuring of Questionnaires

Despite the comparatively low number of participants and the author's inability to travel to the region to conduct face-to-face interviews with stakeholders, the questionnaire was an important possibility to gain some initial insight into expert opinions on the work of the GCCA, which is not available in written sources.

In both rounds, experts were presented with standardised questionnaires containing nine or ten questions. The first questionnaire (Annex B) was qualitative, leaving participants more freedom to refer to issues most important to them in the concerning question and also to collect new ideas to certain issues. The second questionnaire (Annex C) was quantitative, providing less freedom of answer to participants, but took less time to be filled in.

Table 2.3a Qualitative Questionnaire A

QA1	What is, to your opinion, the motivation for the EU to support climate change adaptation in the world generally, and specifically, in the Pacific Small Developing States? What do you think are the EU's main interests in the region?
QA2	Who benefits how from GCCA adaptation?
QA3	Which specific project/s do you know and what do you like or not like about them? (Do you know about progress and success of (one of) the projects?)
QA4	Which social networks are created nationally and regionally through GCCA support? With which organisations/ offices is the EU cooperating? Is new cooperation between actors in the region established?
QA5	Are national/ regional actors strengthened or weakened through GCCA support?
QA6	Do you think that GCCA projects have so far been appropriate? (Where do you see the focus of the work of the GCCA? Does it address the needs of the people in the region to reduce their vulnerability to climate change?)
QA7	How effective have the adaptive measures of the GCCA been so far? (How well did it meet its objectives? Do states become more resilient and gain adaptive capacity?)
QA8	Have they been efficient? (How well inputs such as funds and time were converted into outputs? Does the money actually reach communities?)
QA9	Sustainability: Are the projects of a long-term or short-term nature? (Do you think they will persist after the end of the project period and be continued by local people? Is it help to help themselves?)

Table 2.3b Quantitative Questionnaire B

QB1	Do you have a positive or negative impression of the work of the GCCA?
QB2	What is your estimate for the importance of the following reasons as motivation of EU support in climate change adaptation? (prestige, resources, influence, confession of guilt, altruism)
QB3	Does the support of the GCCA reach many vulnerable (in terms of climate change) people in the Pacific?
QB4	Do the projects of the GCCA act in accordance to the needs of the local people in matters of climate change issues?
QB5	Does the EU cooperate closely with regional organisations and institutions?
QB6	Does the GCCA support networking of regional actors in the Pacific or does it rather constrain them?
QB7	Does the work of the GCCA strengthen or weaken the political and economic influence of national/ regional actors?
QB8	Do you have the impression that Pacific States become more resilient and gain adaptive capacity or become more vulnerable?
QB9	Does the work of the GCCA facilitate independence or does it create dependence?
QB10	Do you have the impression that the local population perceives GCCA support as such (Visibility)?

Questions in both were tried to be close to each other. Nevertheless, there had to be some variation in the way of asking, due to the differing method. As it was expected that response to a questionnaire conducted via e-mail would be generally low and because of the generally full time table of professionals in this area of study, both questionnaires were kept rather short.

Questions asked for the impression on the work of the GCCA, the motivation of the EU to support the region, appropriateness, effectiveness, networking with regional bodies, sustainability and visibility. The final question in both allowed for additional aspects not addressed in the questionnaire or general remarks on the questions. However, it was never used to make any comment. The last question on prestige of the first questionnaire was left out after the first responses, due to misunderstanding and because the fact would be named by respondents in the motivation question if important.

2.4 Data Analysis

For organisational purposes, the first qualitative questionnaire was renamed into Questionnaire A, the questions it contained into QA1, QA2, … . To ensure anonymity[5], respondents were renamed A1, A2, … . The same was done with the

[5] Statements cannot be traced back to individual interview partners.

second quantitative questionnaire, renamed Questionnaire B, with questions QB1, QB2, … . Participants were labelled B1, B2, … .

During and after collecting responses, answers were organised. For the received data of Questionnaire A, tables were generated, providing a summary of comments on each question to identify trends in responses. The table is structured into the number of respondent, the relevant part of his or her answer and the quintessence. For Questionnaire B, data was first entered into Excel and then transferred into SPSS (version 22) to create bar diagrams for the visualization of answers. Question QB2 on motivation was visualised with a net diagram as it included several aspects which could be displayed easier this way. A table with an overview of answered questions can be found in Annex D. The missing answers in both questionnaires were simply left out. For the quantitative questionnaire, they can easily be computed as the total number of participants is known.

The result part was divided into topics, to which the respective questions were assorted. For each question there is either a table or a diagram. Concerning the diagrams, the y-axe contains the number of answers in per cent, the x-axe shows the categories of the respective question. Naturally, some questions are more meaningful than others. The final discussion of the research questions is conducted through empirical analysis of questionnaire responses in combination with literature research to provide a comprehensive overview as there is only a limited number of total responses.

2.5 Limitations

Unfortunately, only a limited number of responses could be collected from both questionnaires. It is difficult to reach people via e-mail, one should make a field trip to the region to compile a representative and elaborate study. This is why this study is to be seen only as an introduction and first impression on the GCCA and its work in the Pacific. Additionally, it has to be taken into consideration that the Pacific Region is a vast area which cannot be generalised about. Climatic conditions, physical geography, ethnic background and other issues vary greatly. However, it is still possible to observe a trend from collected answers, which is rather positive.

3 The Vulnerability Context

3.1 International Climate Change Negotiations

Climate change has been the subject of an international debate for the last decades. The focus on mitigation of chlorofluorocarbon gas emissions shifted to the effects of greenhouse gases (GHG)[6] on global warming. The First Assessment Report of the IPCC in 1990 documented the threat of the consequences of GHG-induced climate change and led to the establishment of the UNFCCC in 1992. (Weir and Orcherton 2013, 57) It established a general framework for intergovernmental efforts to deal with impacts related to climate change and has been adopted by 195 parties[7], who committed themselves to voluntary non-binding reductions in GHG emissions to prevent anthropogenic climate change. For this purpose, the Kyoto Protocol[8] was adopted in 1997 as a legal instrument to fight global warming by reducing GHG emissions. It entered into force in 2005 and was signed by 186 parties. (Yamamoto and Esteban 2014, 105–108)

Already in 1988, the IPCC was set up as a scientific intergovernmental body by the World Meteorological Organisation (WMO) and the United Nations Environment Programme (UNEP) to provide authoritative scientific and technical information on climate change. It consists of three working groups covering physical science, impacts and adaptation, and mitigation. (Weir and Orcherton 2013, 52) So far, five Assessment Reports have been written.

The major input for this thesis comes from Working Group 2, assessing impacts, adaptation and vulnerability. The latest report evaluates how patterns of risk[9] and potential benefits are shifting due to climate change. (IPCC WGII 2014, 3) From the first report, the point that global warming is heavily influenced by human activities

[6] Such as carbon dioxide, methane, nitrous oxide, sulphur hexafluoride

[7] Parties to the UNFCCC are divided into three categories. Annex I parties are industrialised countries that were members of the Organisation for Economic Cooperation and Development (OECD) and countries with economies in transition. Annex II parties consist solely of the OECD members of Annex I. They are mostly responsible for GHG emissions and maintain the financial resources to support developing countries to mitigate and to adapt. Non-Annex I parties are mostly developing countries especially vulnerable to climate change. (UNFCCC 2014a)

[8] 37 industrialised Annex-I countries committed themselves to reduce four GHGs. As the Kyoto Protocol expired in 2012, it was amended in Doha at COP18 to continue from 2013 for 8 years. Negotiations are taking place to establish a succeeding treaty, but they are hindered by a lack of ambition. (Yamamoto and Esteban 2014, 108-110) One reason is the uncertainty about the reactivity of climate to the increase of GHGs and the uncertainty about the intensity of climate change. Furthermore, uncertainties about future vulnerability, exposure and responses of interlinked human and natural systems are large. (IPCC WGII 2014, 11)

[9] New focus: Risk as potential for consequences where something of value is at stake and where the outcome is uncertain, recognizing the diversity of values. Risk of climate-related impacts results from the interaction of climate-related hazards with the vulnerability and exposure of human and natural systems. (IPCC WGII 2014, 3–5)

has been emphasised. It is generally accepted that the release of GHGs into the atmosphere is causing part of the global warming currently observed. (Yamamoto and Esteban 2014, 107)

All Pacific Island Countries (PICs) are parties to the UNFCCC and the Kyoto Protocol. A variety of intergovernmental regional organisations provide support and technical assistance to enable them to meet the treaty obligations. Furthermore, the Barbados Programme of Action[10] was adopted in 1994 at the first global conference on the sustainable development of SIDS. It was followed by the Mauritius Strategy in 2005, which set the terms for a further implementation of the Barbados Programme of Action. This is the only international strategy solely focussed on the needs of SIDS. (USP 2011, 15–20)

Under the UNFCCC, several Least Developed Countries (LDCs) of the PICs[11] developed a National Adaptation Programme of Action (NAPA)[12], to enable them to identify priority activities to respond to urgent and immediate needs to adapt to climate change and communicate them to the Conference of the Parties (COP). (USP 2011, 21–28) Additionally, all non-Annex I parties must report on the steps they are taking to implement the Convention in a National Communication, which emphasise the urgency for adaptation and financial support. (UNFCCC 2014b) Each of the Pacific SIDS has produced an Initial National Communication which describes basic geographic features, vulnerabilities to climate change and measures taken or desired to take to become more resilient. (Weir and Orcherton 2013, 52)

[10] Addresses economic, environmental and social developmental vulnerabilities of islands and outlines a strategy to mitigate these vulnerabilities.

[11] Kiribati, Samoa, Solomon Islands, Tuvalu and Vanuatu are classified as LDCs by the UN.

[12] Main content of a NAPA: synthesis of available information, participatory assessment of vulnerability to current climate variability and extreme events of areas where risks would increase due to climate change. Key adaptive measures and criteria for prioritising activities are identified. A selection of priority activities is short-listed. Its purpose is to facilitate the development of proposals for the implementation of the NAPA. (UNFCCC 2014b) All NAPAs can be accessed on the UNFCCC website.

3.2 Vulnerability

The IPCC in its Fourth Assessment Report defines vulnerability as:

> *[T]he degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change[13], including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed[14], its sensitivity[15], and its adaptive capacity[16].* (IPCC 2007, 21)

The most recent Fifth Assessment Report provides a more general definition:

> *Vulnerability is the propensity or predisposition to be adversely affected. [It] encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt*. (IPCC WGII 2014, 4)

Furthermore, the IPCC argues that

> *High vulnerability often stems from the combination of natural and societal factors, whereby social vulnerability in most cases is dependent on development status. Increased access to wealth and technology enhances adaptive capacity, while poverty curtails it. A lack of adaptive capacity is often the crucial factor creating vulnerability, which is why developing countries carry the major burden of climate-related events.* (Nicholls et al. 2007, 336, 337)

Countries, regions, economic sectors and social groups differ in their degree of vulnerability to climate change, because climate change impacts will be unevenly distributed around the world. Poor regions have and will have difficulty responding to climate change, as climate-related hazards will exacerbate other stressors. (Olmos 2001, 3, 4; IPCC WGII 2014, 8) Moreover, non-climatic factors and multidimensional inequalities due to uneven development processes are responsible for differences in

---

[13] Energy received from the sun is partially reflected back into space. However, because of greenhouse gases in the atmosphere, much of this energy is retained and keeps the planet much warmer. An increase in greenhouse gas emissions can lead to anthropogenic climate change. The concentration of CO_2 nearly doubled compared to the concentration at pre-industrial times and is still rising. If concentrations can be kept below 450ppm, global temperature rise might not exceed 2 – 2.4°C. (Yamamoto and Esteban 2014, 31-36)

[14] Exposure is the presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings that could be adversely affected. (IPCC WGII 2014, 4)

[15] Sensitivity is the degree to which a system is affected, either adversely or beneficially, by climate-related stimuli. Climate-related stimuli encompass all the elements of climate change, including mean climate characteristics, climate variability, and the frequency and magnitude of extremes. The effect may be direct (e.g., a change in crop yield in response to a change in the mean, range, or variability of temperature) or indirect (e.g., damages caused by an increase in the frequency of coastal flooding due to sea-level rise). (IPCC 2001, 6)

[16] Adaptive capacity is the ability of a system to develop for the purpose of accommodating to climate change impacts or expanding the range of variability with which it can cope. Adaptive capacity is especially low when there is a lack of physical, economic and institutional capacities to reduce climate-related risks. (Nicholls et al. 2007, 344) It is often measured through vulnerability assessments. According to the WHO, adaptive capacity is determined by economic wealth, technology, information, skills, infrastructure, institutions and equity. (Mimura et al 2007, 704)

vulnerability and exposure. (IPCC WGII 2014, 7)

Islands face multiple stressors and can thus be assumed to be more at risk from climate change. Their vulnerability is created through interaction of four interrelated factors: socio-economic stressors[17], geo-physical characteristics, socio-ecological stressors[18] and climate-induced stressors. (Nurse et al. 2014, 22, 23) All these dimensions of vulnerability need to be assessed to understand island vulnerability. (Rasmussen et al. 2011, 44) Currently, islands rely on eternal aid to turn the challenges of climate change into opportunities. (Maas and Carius 2012, 661)

Media reports and policy discussions on the region are frequently dominated by a discourse of sinking islands, which shifts the focus away from opportunities to reduce vulnerability. Rather, climate change should be placed high on the agenda with all other development concerns, which are as important as climate change. (Kelman 2013, 1–7)

3.3 Adaptation

“Throughout history, people and societies have adjusted to and coped with climate, climate variability and extremes with varying degrees of success.“ (IPCC WGII 2014, 8) Within the UNFCCC, it is now widely recognised that adaptation is a core component of the response to global climate change and that those countries that are the least able to adapt need assistance.[19] Articles 4.8 and 4.9 of the convention explicitly mention funding and transfer of technology to meet the concerns and needs of developing country parties that originate from climate change. Adaptation has thus become one of the key developing country issues in the context of climate negotiations[20]. The incorporation of climatic impacts in the formulation and implementation of national and international development initiatives makes development more sustainable and reduces vulnerability to climate change. (Olmos 2001, 11)

Among several definitions of adaptation in the climate change literature, this one is applied for this paper as it encompasses the most important aspects:

Adaptation is a process of adjustment to actual or expected climate and its

[17] Challenges of managing urbanization, pollution and sanitation.

[18] Reduce the ability of socio-ecological systems to bounce back after shocks, e.g. habitat loss and degradation, invasive species, overexploitation, pollution, human encroachment and disease.

[19] The cost of implementing adaptation activities in SIDS is often prohibitive of a country's economic wealth. (Mimura et al 2007, 706)

[20] Before, most efforts to address climate change have focused on mitigation to limit GHG emissions as a result of human activity. The importance of adaptation grew, because most people agree that changes to climate patterns became inevitable.

> *effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.* (IPCC WGII 2014, 3)

Adaptation is a dynamic process requiring awareness raising, mainstreaming of climate change into government policies, acquiring knowledge and data and community capacity building and training. (USP 2011, 14) It can be passive, reactive or anticipatory; it can be planned or spontaneous.

According to the IPCC Third Assessment Report,

> *[a]daptation has the potential to reduce adverse impacts of climate change and to enhance beneficial impacts, but will incur costs and will not prevent all damages. […] Planned adaptation can supplement autonomous adaptation, though options and incentives are greater for adaptation of human systems than for adaptation to protect natural systems. Adaptation is a necessary strategy at all scales to complement climate change mitigation efforts. (IPCC 2001, 6–8)*

The occurrence and nature of adaptation is influenced by a system's vulnerability, sensitivity, resilience[21], susceptibility[22] and adaptive capacity. Human organisations and institutions often play crucial roles in minimizing the adverse impacts of climate change. Additionally, adaptation is important for assessments of potential impacts of climate change. Technical advances, institutional arrangements, the availability of financing and information exchange are crucial factors for the success of adaptation. (Olmos 2001, 6–11)

Many ways of adaptation do exist, which reduce socio-economic vulnerabilities, build adaptive capacity, enhance disaster risk reduction and build longer term climate resilience. (McGray, Hammil, and Bradley 2007, 17pp) A decision of the COP divided adaptive activities in three stages. Stage I includes planning and studies of impacts of climate change to identify vulnerable regions and to identify policy options for adaptation and capacity building. Stage II involves preparatory measures for adaptation and stage III implies measures to facilitate adequate adaptation. (Olmos 2001, 13)

Financial aid for adaptation has increased since the failed UNFCCC

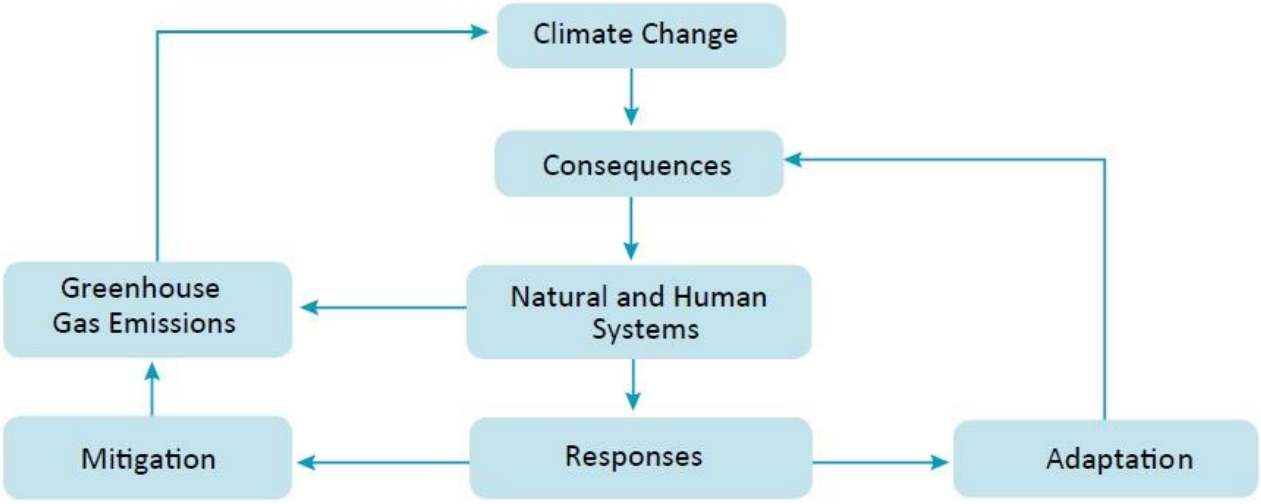
[21] Capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation. (IPCC WGII 2014, 5)

[22] Degree to which a system is susceptible to climate stimuli. Resilience of Pacific Small Island States seems to originate from a belief in own capacity, familiarity with their environment and understanding of what is needed to adapt. (Kuruppu and Liverman 2011, 10; Tompkins, Hurlston, and Poortinga 2009, 270pp)

negotiations in Copenhagen in 2009. However, according to the IPCC, adaptation in 2007 took place on a limited basis. Measures undertaken included policies, investment in infrastructure, technologies and behavioural change. Most of the time, they are not undertaken in response to climate change alone, but embedded in broader sectoral initiatives. (Adger, Agrawala, and Mirza 2007, 719–727) Developing countries demand that climate change finance should be new and additional to existing development aid. However, developed countries are often reluctant to provide this assistance because of the uncertainty associated with adaptation, its costs and the lesser number of climate change affected countries. (Yamamoto and Esteban 2014, 80, 81)

Currently, climate change adaptation frequently is conducted in combination with disaster risk reduction (DRR). DRR reduces disaster risk through analysis and management of the causal factors of disasters. It reduces the exposure to hazards[23], the vulnerability of people and assets, and improves the environmental management of land and disaster preparedness. DRR focusses on risks related to all categories of hazards, not only climate change. (Hay 2012, ii–4)

Figure 3.3 Adaptation and other responses to climate change (Hay 2012, 10)

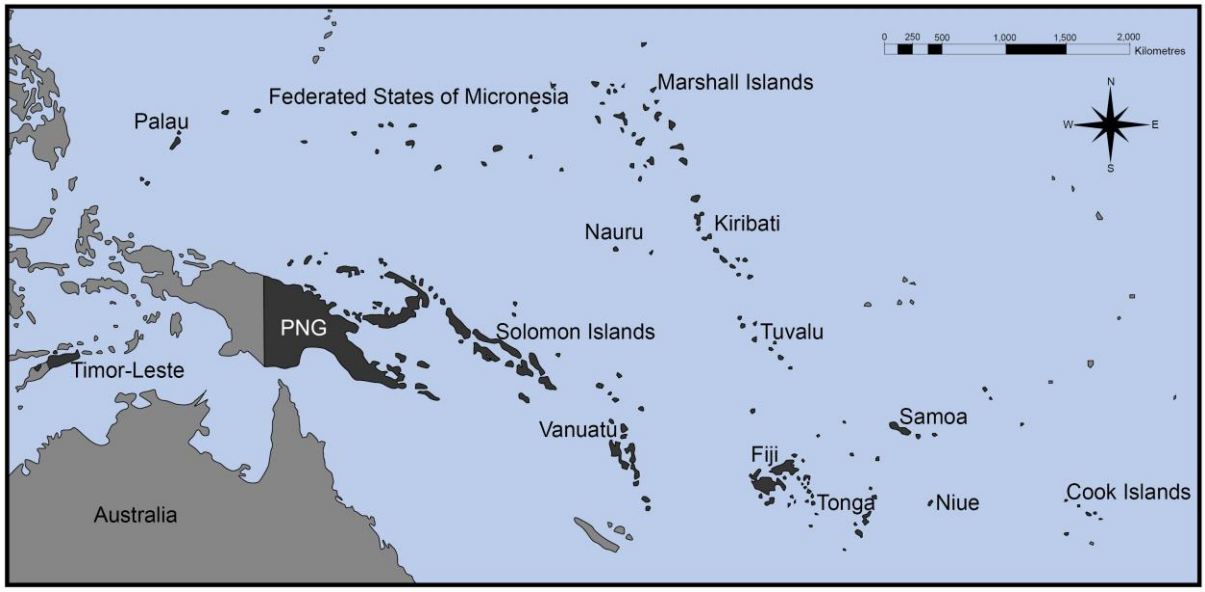


[23] Hazard: potential occurrence of a natural or human-induced physical event or trend or physical impact that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems, and environmental resources. (IPCC WGII 2014, 3)

Climate finance structures contain an abundance of overlapping global, multilateral, bilateral and national funds and are not easily accessible. Countries intending to obtain assistance need to understand the wide range of funds, what they are for and how to apply for them. They usually have different criteria, characteristics and objectives, implying that the application process begins anew with every fund. Processes for determining who receives what from whom have become increasingly difficult since the recognition of the need for climate adaptation finance has grown. (Ewing 2013)

4 Description of the Pacific Region

Map 4 The Pacific Region (Map created by the author)



4.1 Physical Geography

In this thesis, the term Pacific Islands refers to the group of Pacific ACP States[24]; islands in the Pacific Ocean, north easterly of Australia. The respective states are the Cook Islands, the Federated States of Micronesia (FSM), Fiji, Kiribati, Nauru, Niue, Palau, Papua New Guinea (PNG), the Republic of Marshall Islands (RMI), Samoa, the Solomon Islands, Timor-Leste[25], Tonga, Tuvalu and Vanuatu. They belong to three sub-regions, namely Micronesia[26], Polynesia[27] and Melanesia[28], and share cultural history. Figure 4 depicts a map of the region.

They show a high diversity in both physical and human attributes (Nurse et al. 2014, 3), are spread over a vast region of the Pacific Ocean and are located in the equatorial zone between the tropic of Cancer and Capricorn, and thus belong to the warm tropics with humid climate. The annual average temperature is about 27°C and the amount of annual rainfall is about 3000mm. In July, the region receives between 100 and 200mm of rainfall, in January about 200 to 300mm. (Zahn 1996, 218–227) The meteorological services in the region are comparatively small with limited

[24] ACP: Africa, Caribbean, Pacific States are developing states who cooperate with the EU

[25] Geographically belongs to Southeast Asia, but is subsumed by the GCCA into the Pacific Region

[26] Micronesia, “black islands”: Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau (there are more Micronesian, Polynesian and Melanesian countries, only the ones relevant for my thesis will be named) States usually consist of larger land masses with larger populations, more natural resources and greater ethno-cultural diversity. (USP 2011, 11)

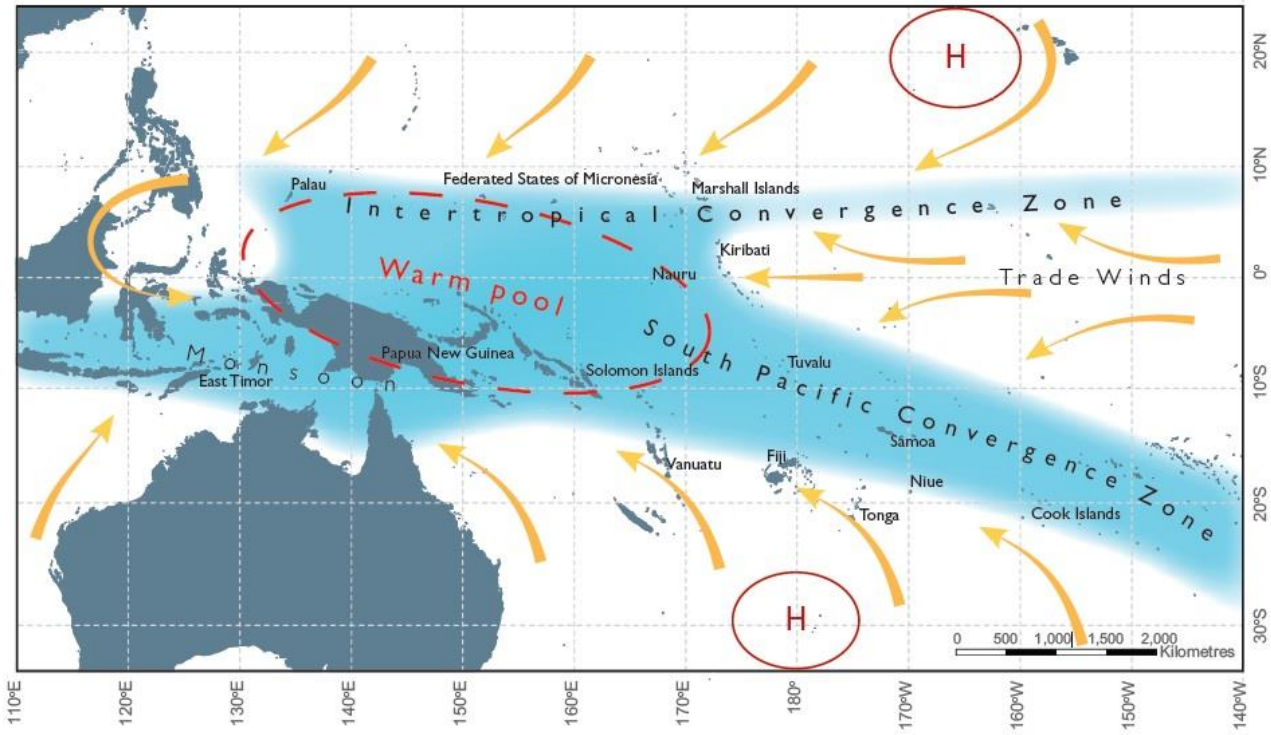
[27] Polynesia, “many islands”: Cook Islands, Niue, Samoa, Tonga, Tuvalu; Is the largest of the three sub-regions, with small islands which contain relatively homogeneous cultures and greater social cohesion. (USP 2011, 11)

[28] Melanesia, “small islands”: Fiji, PNG, Solomon Islands, Vanuatu; Most islands situated north of the equator and are mostly small, low-lying, geographically scattered with few resources. (USP 2011, 11)

resources, budgets and staff. They are overwhelmed by policy issues and operational requirements[29] and hence, have limited ability to undertake environmental planning and provide advice to governments. (WMO 2014)

The climate of the Pacific Islands and Timor-Leste is influenced by the South Pacific Convergence Zone[30] (SPCZ), the Intertropical Convergence Zone[31] (ICZ) and the West Pacific Monsoon[32] (WPM) which can be seen in Figure 4.1. All of them are caused by winds converging over warm water, producing thunderstorm activity and high rainfall. These prominent large-scale climate features influence seasonal rainfall and result in wet seasons from May to October and dry seasons from November to April in the Northern Hemisphere. They meet over the West Pacific Warm Pool, comprising some of the world's warmest open waters. (International Climate Change Adaptation Initiative 2013, 3)

Map 4.1 Average positions of climate features in November to April
Arrows show near surface winds, the blue shading shows the bands of rainfall convergence zones, the dashed oval shows the West Pacific Warm Pool and H represents typical positions of moving high pressure systems. (International Climate Change Adaptation Initiative 2013, 3)



[29] Tropical cyclones, climate variability, climate monitoring, climate change, provision of routine weather information including forecasts, and meeting the needs of industry such as aviation

[30] SPCZ: Band of heavy rainfall spreading out from near the Solomon Islands to east of the Cook Islands, which is strongest in the Southern Hemisphere wet season. (International Climate Change Adaptation Initiative 2013, 3)

[31] ICZ: Covers the Pacific just north of the equator and is strongest in the Northern Hemisphere wet season. (International Climate Change Adaptation Initiative 2013, 3)

[32] WPM: Caused by differences in temperature between land and ocean and moves north to mainland Asia during the Northern Hemisphere summer and south to Australia during the Southern Hemisphere summer. It brings a lot of rainfall. (International Climate Change Adaptation Initiative 2013, 3)

The El Niño Southern Oscillation (ENSO) is a three to five year lasting cycle largely responsible for climate variation in the region. This phenomenon represents two naturally opposite extremes in the sea surface temperatures across the central and east-central equatorial Pacific. (Yamamoto and Esteban 2014, 41) The El Niño event occurs every two to seven years and brings weaker Trade Winds and a warming of the central and eastern tropical Pacific Ocean. It usually lasts nine to twelve months. The opposite extreme is La Niña, lasting one to three years, during which the western part of the Pacific is warmer and the eastern area colder. This change alters the strength and position of the ICZ and SPCZ, and the timing of the monsoon. (International Climate Change Adaptation Initiative 2013, 4)

Moreover, the boundary of the Australian plate runs through the region. An active subduction under the Pacific plate takes place, which turns part of the region into a seismotectonic area prone to marine earthquakes and strong earthquakes above 7 on the Richter scale. Because of the tectonic activity, there are many volcanoes. (Zahn 1996, 218)

Size, geography, development and population of the states vary greatly. There are comparatively large, high-rising island states such as PNG with over 5 Million inhabitants, and small atoll countries such as Tuvalu, which rises only a few metres above sea level and accommodates only ten thousand inhabitants.[33] (Maas and Carius 2012, 652) Often, the label on the map is much bigger than the respective island. Papua New Guinea (PNG), the Solomon Islands and Fiji are the only states without limited land resources. The total land mass of the Pacific accounts for an area of 552,000km², which is only 2% of the total 30 Million km² of the region[34]. The limited land mass is under pressure from its inhabitants, who have needs for housing, waste disposal and food. They are extremely exposed and sensitive to climate change related impacts, due to their small physical size, being surrounded by the ocean and due to being located in a region prone to natural disasters and climate extremes. (Kelman and West 2009, 2–4)

However, all island states own considerable marine resources. 20 Million km² of the Exclusive Economic Zone (EEZ) of the Pacific region belongs to ACP

[33] High islands developed from volcanic activity and can support larger populations and have a more fertile soil. Low islands consist of reefs or atolls and are generally small and infertile. Melanesia hosts many high islands, whereas most parts of Micronesia and Polynesia are low-lying. (USP 2011, 12)

[34] The land mass of the Pacific Islands is comparable with the size of Spain.

countries.[35] They are home to the richest fishing grounds in the world, a centre of marine biological biodiversity. Additionally, an abundance of minerals can be found in the region.[36] The presence of key powers like the United States, China, Japan, Australia and New Zealand highlight the geo-political and geo-economic importance of the region. All have security, political and trade interests, as demand for natural resources is increasing. (EC 2006, 15–16)

The Pacific region is home to the most extensive and diverse coral reefs in the world, the largest tuna fishery and the largest remaining populations of many rare and threatened species. Reefs and mangroves are important for the health of marine resources, showing that the intersection of aquatic and terrestrial ecosystems is highly complex. (EU and PIF 2008a, 126, 127)

4.2 Social and Economic Characterization

Economic and human development varies significantly across the island states. One feature they have in common is the reliance on subsistence farming and fishing as main source of food, income and employment. The region hosts a vast diversity of languages and cultures, which maintain traditional practices and customs focused on the marine and coastal environment. (USP 2011, 11) Additionally, they are often dependent on a limited resource base regarding arable land and fresh water because of their small size. Many important goods, such as energy, food, materials and manufactured goods, need to be imported. Tourism is a major economic sector for many PICs. (Maas and Carius 2012, 652)

Pacific Island states are home to comparatively large populations relative to their size, and are characteristic of high growth rates and densities in urban areas. The region hosts an increasing population; from 1990 to 2011, it grew from 6 Million to 10 Million people, an average growth rate of 3.3%.[37] (SPREP 2012, 2) Additionally, the population is very young in most cases, with over 50% of people being younger than 15 years. (USP 2011, 12)

The Pacific ACP States face various development challenges, and can hardly attain critical mass for production, trade and political influence. The tyranny of distance is common to the region, because of the extreme distances between and

[35] About four times the size of the EU

[36] Gold, Copper, Nickel, Oil, Gas – much unexplored

[37] PNG hosts the only population exceeding 1 Million. Tuvalu, Nauru, the Cook Islands and RMI host populations of less than 50,000. (Weir and Orcherton 2013, 52) PNG has the lowest population density with 15 people per km², Tuvalu the highest with 383 people per km². (Maas and Carius 2012, 652)

within most island states. Low frequency and high cost of transportation constrain economic development. On the other hand, electric communication is becoming more available and affordable. (EC 2006, 16–20)

The latest evidence shows that the region is far from achieving the Millennium Development Goals (MDGs)[38] in 2015. 3.2 Million people in the region live in poverty and do not possess the income to satisfy basic human needs.[39] About 480,000 children do not go to primary school[40] and 0.46% of children die before the age of five mostly from preventable causes. (EC 2011) Concerning financial resources, they continue to rely on aid and cooperative programmes for their operations. These are bilateral, multilateral or regional and come from individual countries, groups of countries or regional and international organisations. (WMO 2014)

As they have been for the last 3500 years since the settlement of the islands, Pacific people still live along coasts and subsist mainly on foods available onshore and offshore.[41] (Patrick D. Nunn 2013, 143) Fisheries are an important part of small island economies and sustainable livelihood security.[42] The reefs surrounding many island states are food source as well as income source from tourism and the sale of fish[43] and also provide protection from storms and erosion. (SPREP 2012, 4) Because of people's dependence on local resources, increasing populations and uncoordinated concentrations, pressure on resources and natural systems is inevitable. Therefore, sustainable management of these resources is essential. (EU and PIF 2008a, 125)

The Pacific Islands economies are comparatively small as they rely on few economic activities, and are thus more exposed to extreme events and climate change. (Mimura et al. 2007, 701) Furthermore, economic activity is concentrated in PNG and Fiji, which together represent 88.6% of land mass, 70% of GDP and 74.5% of population. (EC 2012a, 4) Deep-sea mining, the quarrying of minerals and other natural resources from the ocean floor, is an arising field for economic activity. However, it entails environmental concerns. (Maas and Carius 2012, 653) Moreover,

[38] MDGs: Eradicate extreme poverty and hunger, achieve universal primary education, promote gender equality and empower women, reduce child mortality rates, improve maternal health, combat HIV/AIDS, malaria and other diseases, ensure environmental sustainability and develop a global partnership for development.

[39] Majority in PNG and Timor-Leste

[40] Especially in PNG, Vanuatu and Fiji

[41] The move to coastal locations was encouraged by colonial and religious authorities and recently through tourism. (Barnett and Campbell 2010, 21pp)

[42] Tuna fisheries represent the region’s major hope for economic self-sufficiency.

[43] Fish represents 73% of total exports of some countries. (FAO 2008, 8)

overseas aid and remittances by islanders working abroad contribute significantly to the GDP of several PICs. (Weir and Orcherton 2013, 52)

The islands' energy consumption relies on import of liquid fossil fuels for electricity and transport needs, causing relatively high energy prices and high outputs of carbon dioxide.[44] Additionally, due to the combination of small land masses, high population growth and increasing competition for land resources, conflicts in waste management practices occurred. (SPREP 2012, 2–3)

Socio-economic conditions are currently influenced by an urbanisation of the major centres, mostly the respective capital cities of island states, because of education and economic opportunities. Rural and outer-island residents are rapidly moving there. Additionally, there is continued pressure from globalization, despite the region's history of colonialism and experience of global capitalism. (Mimura et al. 2007, 693) “Most of their economies [...] are subject to external forces, such as changing terms of trade, economic liberalisation, and migration flows.” (Mimura et al. 2007, 691)

All Pacific ACP states except Tonga are democracies. However, modern institutions have not yet taken root everywhere and struggle with existing traditional power structures.[45] Thus, some countries are potentially unstable, some have human rights problems[46] and some problems of governance and corruption[47]. (EC 2006) However, the islands are generally perceived relatively stable and peaceful and there are few reported human rights abuses. Violent riots and conflicts mostly occur over tenure and land rights[48]. (Maas and Carius 2012, 653–656)

The Pacific region is characteristic of an outstanding cultural diversity and richness. However, traditions such as the strong culture of sharing expressed in land ownership raises barriers to acquire land for development or using it as collateral. This comprises a disincentive for saving for investment. (EC 2006, 19)

Traditional lifestyles, once adapted to their natural environment, were changed through various factors. These were, most importantly, population growth, cash economy, urbanisation, dependency on imported goods creating waste management problems and tourism. Traditional knowledge, practices and cultures still in place are

[44] 90% of PICs’ energy demand is met by fossil fuels. (Weir and Orcherton 2013, 5)
[45] Women remain under-represented in technical and professional education and are over-represented in low-paid informal sectors. (EU and PIF 2008, 17)
[46] Tonga has serious issues related to gender: violence against women, polygamy
[47] Solomon Islands and PNG
[48] Land is of great value for the identity and social cohesion of Pacific islanders. It is customarily owned and passed down for generations.

strongly based on community support networks. (Mimura et al. 2007, 695)

4.3 Regional Cooperation

Pacific Island States often combine forces at regional level. However, Pacific regionalism is not about economic integration through creating a single market, but rather concerned with cooperation in certain functional areas. Regional organisations are seen as an extension of national capacity and important in delivering services at the national level. (EU and PIF 2008a, 15, 32) A Pacific Plan to drive regional cooperation and integration was set up in 2005, but is said to have had limited impact so far, as it is too broadly framed and has too many priorities. (Dornan 2014)

The premier body for regional policy-making of the relatively young self-governing states in the Pacific is the Pacific Islands Forum (PIF), established in 1971. Its members are Australia, New Zealand and 14 Pacific ACP countries[49]. The PIF promotes regional cooperation in economic and trade matters and implements decisions. However, the geography of the region is the main determinant of the cooperation being neither broad nor deep. (EC 2006, 20)

The oldest body of regional cooperation, the Secretariat of the Pacific Community (SPC), was founded in 1947 under the Canberra Agreement in Australia. It was then used by the six participating governments[50] to administer the region after the Second World War. Today, as most Pacific territories turned into sovereign states, they are members themselves. Its objective is to support Pacific Island people to achieve sustainable development in various fields. (SPC 2011a)

The Pacific Regional Environment Programme (SPREP) is the major actor concerning climate change related issues. Its priority areas are strengthening meteorological services; understanding climate change, climate variability and sea-level rise; understanding vulnerability, adaptation and mitigation; and supporting policy development on climate change. It is the interface between most PICs and the international climate change community and represents the views of Pacific nations. (Kelman and West 2009, 5) Additionally, it functions as the secretariat to the Pacific Climate Change Roundtable (PCCR)[51].

Another regional organisation is the University of the South Pacific (USP), which provides internationally recognised higher education and training at all levels. It provides education which is sensitive and relevant to the diverse island cultures and

[49] Timor-Leste is only an observer. Additionally, Fiji is currently suspended.
[50] Australia, France, Netherlands, New Zealand, UK, USA
[51] Coordinating body for climate change related initiatives in the Pacific region.

environments. In addition, it promotes social and economic advancement and good governance. (EU and PIF 2008a, 179)

Nine Pacific regional organisations[52] are part of the Council of Regional Organisations of the Pacific (CROP), whose purpose is to promote harmonisation and collaboration between programmes, and to avoid duplication of efforts and resources. It is thus a coordination mechanism between the heads of the regional organisations in the Pacific and a high-level advisory body. (PIFS 2014)

As the region acknowledges that current adaptive actions are insufficient to cope with the increasing vulnerability to climate change, the Pacific Islands Framework of Action on Climate Change 2006 - 2015 (PIFACC) was established and translated into an action plan. It identifies key vulnerabilities and provides guiding on activities and planning, to ensure that communities enhance their capacity to adapt. (EU and PIF 2008a, 46)

Furthermore, Pacific leaders established the Cairns Compact in 2009, which is supposed to strengthen development coordination. In detail, for donors this implies a reduction in aid fragmentation, easier aid administration and improved aid effectiveness. This is to be achieved through an increased use of country systems, multi-year funding commitments, pooled financial resources, delegation of aid delivery and collaborative analytical work. (EC 2012a, 6)

Besides this regional cooperation, SIDS join forces worldwide at the Alliance of Small Island States (AOSIS), which was created in 1990. Its members share the concern about climate change and the environment regarding fragile island ecosystems and perceive themselves as principal victims of climate change. The alliance acts as negotiating body and lobby for SIDS[53] and has been one of the key players in UNFCCC negotiations in strengthening and seeking new treaties. Their major demand is that industrialised countries should accept their responsibility for causing climate change. However, their position is still very weak. (Yamamoto and Esteban 2014, 111–115, 133)

[52] Pacific Islands Forum Fisheries Agency, Pacific Islands Development Programme, Secretariat of the Pacific Community, Secretariat of the Pacific Regional Environment Programme, South Pacific Tourism Organisation, University of the South Pacific, Pacific Power Association, Pacific Aviation Safety Office, Pacific Islands Forum Secretariat

[53] Includes all island states belonging to AOSIS and other island territories.

4.4 Key Impacts and Vulnerabilities Related to Climate Change

> *Climate change will act as a "threat-amplifier", with impacts that include rising ocean levels, ocean warming and acidification, changing precipitation patterns, changing cloud cover patterns, altered ocean and atmosphere circulation patterns, and increased intensity and frequency of extreme weather events.* (SPREP 2012, 58)

Despite the fact that scientific literature on observed impacts is limited and the impact detection of climate change is difficult due to the presence of anthropogenic drivers in the constrained environments of small islands, their vulnerability is still widely accepted. The ability of models to project tropical cyclone frequency and intensity, wind speed and direction, precipitation, sea-level, ocean temperature and ocean acidification is limited. In addition, there is a lack of long term baseline monitoring of changes in climatic risk and projections mainly focus on the region as a whole. The heterogeneity and complexity of single states need to be acknowledged and better understood. Studies depict that change occurs but do not quantify the probability, speed, scale or distribution of future climate risks. (Brown et al. 2013, 148pp; Nurse et al. 2014, 14–22, 33)

4.4.1 Climatic Changes

From 1850 to 2005, the average global temperature increased by about 0.76°C. Until 2100, it is expected to further increase by 1.1 to 6.4°C relative to 1890-1990. In the South Pacific, air temperature is expected to rise between 0.99 and 3.11°C until 2100 relative to 1961-1990. Precipitation change is predicted to range from -14 to +14%. (USP 2011, 12, 13) The areas of greatest warming are mainly located near the equator, west of longitude 180°E. Over the past 50 years, there has been a trend of increased rainfall north-east of the SPCZ and decreased rainfall south-west of the SPCZ. Another important change is the increase of sea surface temperatures by about 0.7°C from 1950 to 2000 across the tropical Pacific due to the absorption of increased carbon dioxide emissions. (International Climate Change Adaptation Initiative 2013, 5, 6) Another factor linked to sea surface temperature rise is the increased frequency of El Niño episodes since the 1970s without alternating La Niña events. (FAO 2008, 5)

4.4.2 Sea-Level Rise

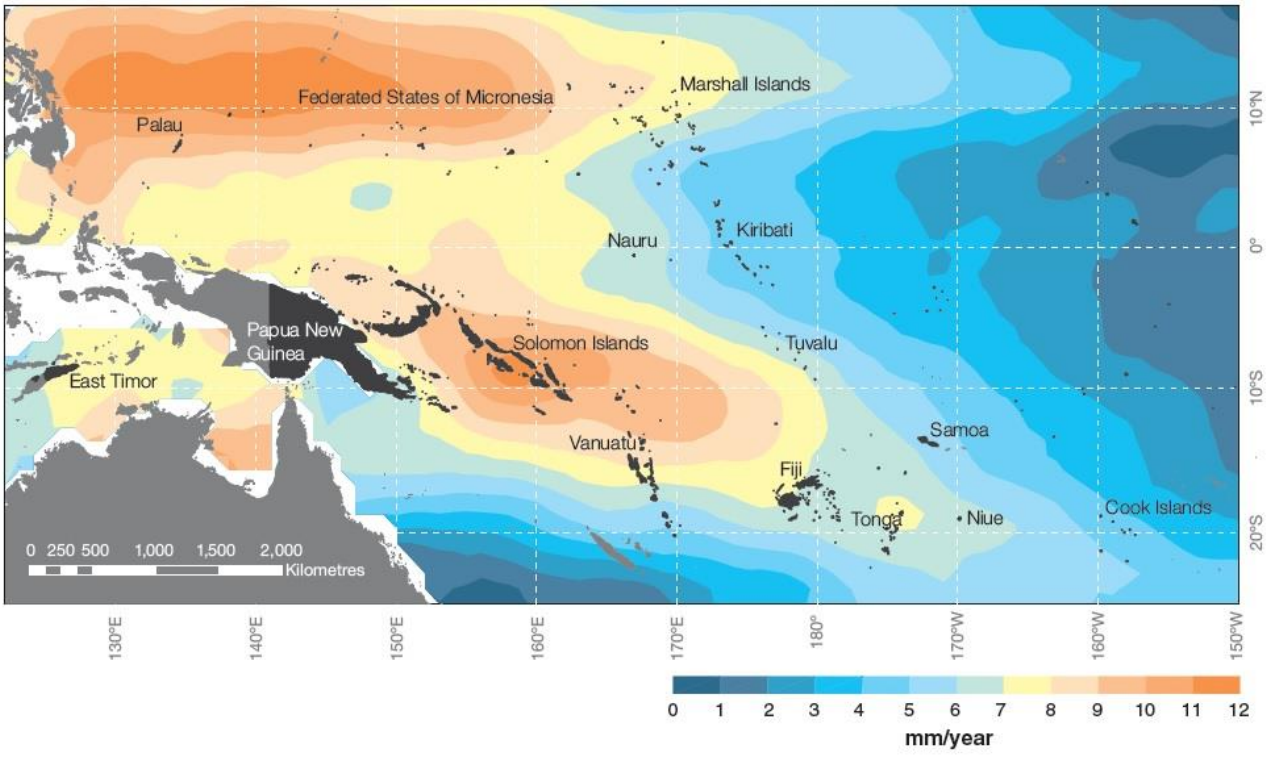
One of the greatest threats to the region, on which most literature can be found, is the exposure and sensitivity to sea-level rise:

> *The 'disappearing islands' is a distinct idea that emerged out of the Intergovernmental Panel on Climate Change report to describe the vulnerability of small Island states in the Pacific to sea-level rise as a result of climate change. (Cameron 2011, 837)*

Sea level is rising due to melting glaciers and land-ice, changing air-pressure, thermal expansion of the ocean and gravitational shifts triggered through relocation of ice/water mass. (SPREP 2012, 62)

According to the IPCC, the global mean sea level rose by 0.19m [0.17 – 0.21]m between 1901-2010. Between 1993 and 2009, sea-level rise in some areas in the Pacific averaged 10mm per year; much more than the worldwide average of 3.2±0.4mm per year. It will continue to rise and might be 1.2m higher than today by 2100. (Patrick D. Nunn 2013, 143–147)

Map 4.4.2 Regional distribution of sea-level rise measured by satellite altimeters from January 1993 to December 2009. (International Climate Change Adaptation Initiative 2013, 7)



However, the IPCC does not provide an upper bound to the maximum possible sea-level rise, as it might exceed projections due to ice sheet break up in Greenland and Antarctica. In case of a collapse of the West Antarctic Ice Sheet (unlikely), global

mean sea level will rise about five metres, which would entirely cover some SIDS. Even under average IPCC scenarios from 2007, various SIDS are predicted to lose land.[54] (Kelman and West 2009, 3)

A rise in sea level has a major influence not only on low-lying atoll islands but also higher islands, on which settlements, infrastructure and facilities are located in the coastal zones. Sea-level rise will most likely cause increased inundation, storms, beach erosion, land loss, seawater intrusion into freshwater lenses, soil salinisation[55] and decline in water supply. This threatens infrastructure, settlements, fisheries, agriculture and other livelihood facilities of island communities. Sea-level rise will very likely disrupt life on any island, lead to a shift of coastal settlements inland or elsewhere and may cause problems with environmental refugees in the future.[56] (Mimura et al. 2007, 689–694; IPCC WGII 2014, 16; Nurse et al. 2014, 2)

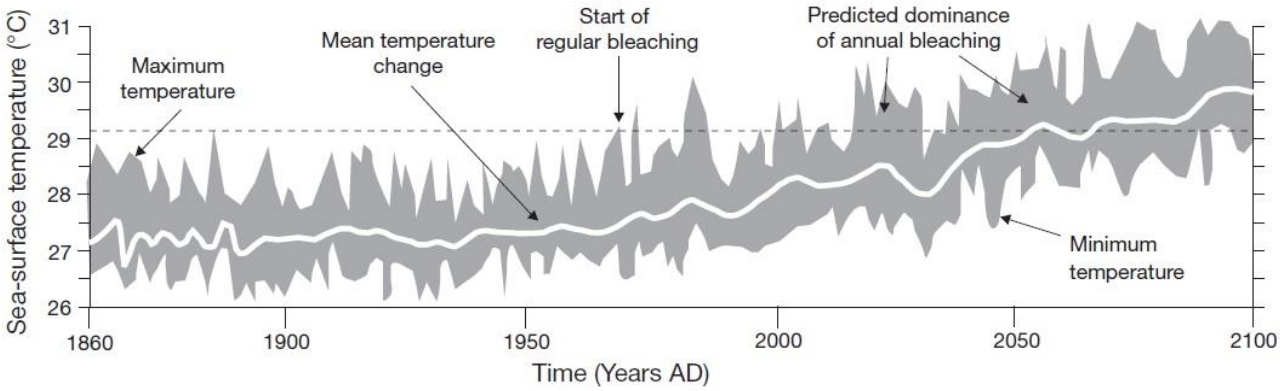
For some states, sea-level rise endangers territorial integrity. Boundaries and territories (also maritime) are likely to shift for any state with a coast, and a few are threatened in sovereignty and statehood.[57] This would also affect membership of international organisations, diplomatic immunity and trade relations. The issue of dispossessed states will have to be solved in the future. (Maas and Carius 2012, 656–662)

4.4.3 Ocean Warming and Acidification

Through climate change induced ocean warming and ENSO, the health of coral reefs and other marine ecosystems, which are home to many species, is affected. (Mimura et al. 2007, 689–699) Coral bleaching occurs when corals cannot adapt fast enough to increasing sea temperatures, and is likely to eliminate more than 90% of the corals on a reef.[58] This destroys ecosystem and livelihoods, as food security is threatened and the island is then exposed to ocean waves and storms[59]. (Kelman and West 2009, 4) In a few decades, the subsistence economy of island peoples will probably break down subsequent to the collapse of near-shore marine food-production systems due to coral bleaching. (Nunn 2013, 144)

[54] Tuvalu, Tonga, Kiribati, Marshall Islands and Tokelau in the Pacific
[55] High tides and storms will increase saltwater intrusion too.
[56] Kiribati, RMI and Tuvalu might become uninhabitable by 2040, as they consist predominantly of atolls.
[57] Tuvalu is already negotiating relocation options with New Zealand and Australia.
[58] Corals need a growing temperature between 17 and 34°C.
[59] Coral reefs, as well as mangroves, function as natural coastal defences, protecting an island from erosion and inundation. (Mimura et al. 2007, 696)

Figure 4.4.3 Coral bleaching in Tahiti. Sea-surface temperatures from 1860 to 2100, including ENSO effects compared to the upper thermal tolerance of corals (dashed line). Bleaching began around 1970, when the mean sea surface temperature had begun rising. (Patrick D. Nunn 2009, 213)



Another problem is ocean acidification: for medium- to high-emission scenarios, ocean acidification poses substantial risks to marine ecosystems. (IPCC WGII 2014, 17) The ocean absorbs atmospheric carbon dioxide and is affected by land-based pollution, leading to seawater pH decreasing from 8.2 in pre-industrial times to 8.1 currently. Acidity increased by about 30%. This will negatively affect corals and other pH sensitive organisms and could have serious impacts on coral islands.[60] (Yamamoto and Esteban 2014, 22–45)

4.4.4 Natural Hazards

An increase in the frequency, duration and intensity of extreme weather events[61] is very likely. As an example, cyclones are driven by evaporation from areas of warm sea water; so the warmer the ocean, the more likely it is to generate a cyclone[62]. When a storm hits a small island, its total population and territory can be affected, having a large negative impact on a state's GDP. Food availability and people's access to food are some of the first things to be altered. (Weir and Orcherton 2013, 55–61) Since 1950, natural disasters have affected over 3.8 Million people in 14 Pacific ACP States. In the 1990s, this region had the world's highest rate of disaster-related mortality and costs of $2.8 Billion. (EC 2006, 19)

A major concern of many Pacific Island Countries and Territories (PICTs) is the land loss associated with rising sea levels and natural hazards. For higher and larger islands, impacts will hit mainly coastal areas, whereas for atolls, which are less than

[60] Acidification decreases the rate at which corals form their calcium carbonate skeletons.
[61] Heat waves, droughts, tropical cyclones, storm surges. Non-climate related natural disasters islanders experience are earthquakes, tsunamis, volcanic eruptions.
[62] Storm system with large low-pressure centre surrounded by thunderstorms, causing strong winds and heavy rain.

5m high, loss of land implies catastrophic changes. Thus, almost all economic and social sectors of atolls will be disrupted. Recovery from extreme weather events is rather difficult for many Pacific Islands, because of their remoteness, their ecological fragility and their economic and social vulnerability. (SPREP 2012, 66, 91)

4.4.5 Health

The effects of climate change will exacerbate existing health risks especially in the most vulnerable communities where the burden of disease is already high. Climate-sensitive health problems are various vector- and water-borne diseases and morbidity and mortality from extreme weather events, such as tropical cyclones, storm surges, flooding and drought. (Barnett and Campbell 2010, 12pp) In the Pacific Islands, the incidence of diseases such as malaria, which are typical for tropical areas, has been increasing as a consequence of climate change. (Russel 2009, 19pp)

Many health effects of climate change will be indirect; connected to property damage, loss of economic livelihood and threatened communities. (Nurse et al. 2014, 12)

4.4.6 Water Shortage

Fresh water quantity and quality are a critical issue in small island states and effect all facets of life and livelihood. Water resources are highly vulnerable to climate variability and change in rainfall patterns. Additionally, there is robust evidence and high agreement that increasing GHG concentrations are responsible for increased freshwater-related risks. (IPCC WGII 2014, 15) Most Pacific Islands contain limited sources of freshwater because of lacking surface water or streams. They rely on rainfall and groundwater, and currently suffer from water shortage because of decreased rainfall. Additionally, communities have problems with groundwater pollution, which affects human health and carries water-borne diseases. (Mimura et al. 2007, 693–704)

A decline in rainfall in combination with sea-level rise reduces the volume of available potable water as well as the size of the narrow freshwater lens.[63] For example, a 10% reduction in average rainfall on Tarawa Atoll, Kiribati, would cause a 20% reduction in the size of the freshwater lens. Sea-level rise and resulting soil

[63] Inundation is especially dangerous for atoll islands, since a saltwater layer can be deposited over the freshwater lens that may affect agriculture for months. (Nunn 2013, 147–149)

salinisation aggravate this threat. (Mimura et al. 2007, 689; SPREP 2012, 94–100) Increased wave overtopping and wash-over as a result of sea-level rise impact freshwater lenses dramatically. (Nurse et al. 2014, 9) An atoll island would become uninhabitable because its fresh water supply will be polluted by salt water before it is totally submerged. (Weir and Orcherton 2013, 60)

Rapidly growing demand, land use change, urbanization and tourism are already straining the limited freshwater reserves. (White and Falkland 2010, 227pp) Water stress for the region is becoming worse, also because most states have neither water resource management legislation nor National Water Policies. (SPREP 2012, 100)

4.4.7 Food Insecurity

All aspects of food security are potentially affected by climate change, including food access, utilization and price stability. (IPCC WGII 2014, 18) Rural food security systems are predominantly dependent on natural resources, while urban food security systems became dependent on imported food for their daily sustenance. In the agricultural sector, the past 200 years of rising sea levels in the region caused loss of productive land through inundation, shoreline erosion and groundwater salinisation. Agricultural productivity also relies on seasonal rainfall, which is altered by climate change. This negatively influences soil fertility, and causes thermal and water stress. (FAO 2008, 4–7; Nunn 2013, 143–150) The most recent IPCC report acknowledges that negative impacts of climate change on crop yields in the past have been common. (IPCC WGII 2014, 7) Thus, food security is severely threatened.

In the Pacific, this problem is faced by the Cook Islands, Fiji, Vanuatu and several atoll nations. Economically important crops like the Casuarina tree, sugarcane and coconut palms have died as a result of salinisation. In the past 50 years, effects such as changed pathways of near-shore sediment movements, changed wave regime from overtopping of reef surfaces and estuarine dynamics had an increasing influence on coastal food supplies. (Nunn 2013, 143–150)

4.4.8 Summary: Influence on Livelihood Security

All of the above impacts and vulnerabilities entail a degradation of livelihood. Saltwater intrusion and higher evaporation due to increased air temperatures reduce the availability of fresh water. Agricultural production declines, coral bleaching might cause a collapse of the fishing industry. Climate-sensitive diseases affect human health and tourism[64] as a major source of income diminishes. An increasing population will demand more products from subsistence farming and fishing and will increase other resource pressures. Moreover, productive landscapes are geographically altered so that land mass shrinks, income opportunities are lost and migratory processes from outer to main islands increase. Human insecurity is also caused by disasters, economic marginalisation and community disintegration. (Maas and Carius 2012, 655)

Pressures from human activity are often dominant relative to natural processes caused by climatic change. The most serious impacts are drainage of coastal wetlands, reclamation, discharge of sewage, fertilisers and contaminants into coastal waters, harvests of fisheries, construction of seawalls, sand mining and hydrocarbon production. The pressure on coastal zones is especially high, as settlements tend to be located there. (Nicholls et al. 2007, 317–319) Vulnerability caused by climate change and other natural influences is aggravated through rapid population growth, exploitation of natural resources[65], weak infrastructure, economic stagnation, unemployment, political instability, lacking health care and education services and international conflicts. (Mimura et al. 2007, 693)

> Climate risks could multiply other societal problems that together could overwhelm the problem-solving capacity of societies, disrupt governments and trigger societal instability events. (Scheffran, Ide, and Schilling 2014, 737)

The Research Group Climate Change and Security (CLISEC) around Jürgen Scheffran, which is part of the Centre for Marine and Atmospheric Sciences in Hamburg, conducts research on the linkages of climate change, migration and violent conflict. There is no accordance yet on how and if climate change affects human security, social stability and violent conflict.

[64] Tourism relies on coastal and terrestrial ecosystems to provide visitor attractions and accommodation space and is a highly weather and climate-sensitive sector on many islands. Thus, climate can impact environmental resources e.g. in terms of beach erosion and coral bleaching and causes a loss of destination attractiveness. (Nurse et al. 2014, 10, 11, 31)

[65] Most commonly deep sea fisheries, coastal fisheries, timber and natural gas

However,

> *[l]ong-term historical studies tend to find a coincidence between climate variability and armed conflict, in line with some narratives about the evolution and collapse of civilizations.* (Scheffran et al. 2012, 870)

In turn, conflict can affect sensitivity to climate change and adaptive capacity. (Scheffran et al. 2012)

Through change in temperature and precipitation, and increase in natural disasters, climate change can result in resource scarcity and contribute to the use of violence.[66] This can undermine state capacities and reduce state legitimation, which might eventually lead to state failure and insecurity. (Scheffran, Ide, and Schilling 2014, 375) States may become increasingly fragile and be no longer capable of providing public services. Then, climate change may result in an exacerbation of all other challenges and decrease a state's capacity to peacefully solve domestic and international conflicts. (Maas and Carius 2012, 656–660)

The interconnection of natural and social systems determines whether societal stability can be eroded. Climate change can thus increase humanitarian crises and aggravate existing conflicts without directly causing them. (Ide, Scheffran, and Schilling 2012; Scheffran et al. 2012) Therefore, it is essential to sustainably and peacefully mitigate and adapt to climate change. (Scheffran, Ide, and Schilling 2014, 381)

[66] Among other reasons, violence can emerge from the need to acquire or defend resources, loss of public order and infrastructure; and when people are forced to migrate.

5 The European Union and the Pacific Small Island Developing States

5.1 Pacific-EU Relations

> *Pacific Islands are the first victims of climate change, which hampers their development and threatens peoples' lives. As the largest donor, the EU is taking upon its global responsibilities and will continue to express its solidarity with the poor and vulnerable citizens of these small islands.*
> *European Commissioner for Development, Andris Piebalgs* (EC 2012b)

Both the EU and the Pacific Islands Forum agree on having a long-standing and close partnership rooted in history with each other. (PIFS 2012) It originates from the colonial past[67] between the two regions, which are geographically far apart, but which are "[...] more important to each other, than is generally realised or understood in Europe." (EC 2006, 12) The relationship weakened in the second half of the 20th century, due to decolonisation, but is now becoming closer again as cooperation started in 1975. (PIFS 2012) To the EU, this relationship is about interests and core values like human rights, rule of law, environmental protection and democracy. But it also states that both regions have much to offer to each other. (EC 2006, 23–24)

In the context of the EU-ACP partnership, the EU and the Pacific ACP states and territories look back to more than 30 years of mainly economic and trade cooperation. A revised Cotonou Agreement[68], the Paris Declaration[69] and the European Consensus on Development[70] provide a new basis for EU-Pacific relations. (EC 2006, 2) The EU sees itself as an influential partner, being the second biggest donor in the region. Total aid granted under Lome Conventions and the Cotonou Agreement exceeds €1.8 Billion. (EC 2006, 25) Development and climate change assistance to Pacific countries and OCTs that derives from the EU budget and the 10th European Development Fund was increased to about €785 Million for the period 2008 – 2013. (EC 2012a, 2–7)

As the EU wants to renew and reinforce its partnership, the first ever strategy for the Pacific was developed in 2006. The Pacific strategy defines the EU's

[67] Most recently United Kingdom, Portugal, France and before that Germany and Spain. All had influence on the region, such as the British political institutions. Many states are part of the Commonwealth and retain the Queen as their Head of State.

[68] Treaty between the EU and ACP States to reduce poverty and contribute to sustainable development and integration in the world economy. It was signed in 2000 and entered into force in 2003. Signatories were 78 ACP states and the then 15 EU member states.

[69] 2005 declaration of OECD on improving aid effectiveness and harmonising international donations in developing countries.

[70] 2005 policy statement of EU Member States, the Council, the European Parliament and the Commission about a common EU vision of development; on willingness to eradicate poverty and make the world more stable and equitable.

partnership with 15 Pacific ACP[71] countries and eight Overseas Countries and Territories (OCTs), of which four are European[72]. For better fund coordination, the EU also cooperates with Australia and New Zealand, the two developed countries of the PIF. The strategy consists of three components, which are more efficient aid delivery, more focused development action and a broad political dialogue of matters of common interest to strengthen the relationship. (EC 2006, 5)

The EU's major objectives are to adapt and streamline methods of EU official development assistance and scaled up climate change financing, to catalyse inclusive and sustainable growth and coherence between policies. Furthermore, it wants to define a positive agenda of issues of common interest at the United Nations and other fora, so as to join forces with like-minded partners and achieve the Millennium Development Goals. Another important aspect is the promotion of EU values such as human rights, democracy, sustainable development and good governance. (EC 2012a, 2–3)

Trade with the Pacific is an important aspect to both parties, even when they see it as rather small and erratic. The main export goods of the Pacific Islands are palm oil, fish, coconut (copra), copper and sugar; whereas the EU exports machinery and transport equipment. Additionally, the EU has signed interim Economic Partnership Agreements with Fiji and PNG.[73] Various European companies have invested in the region, especially in Melanesian countries. An investment facility is to be set up to encourage more private investments through blending public and private money. (PIFS 2012) Of the total amount of exports of the Pacific Islands, 10% go to Europe; of the total amount of imports, 5% come from Europe. However, 90% of the total exports come from PNG and Fiji, and 41% of imports go to these two countries. (EC 2006, 24)

Since climate change is linked with various policy fields such as trade, energy,

[71] The ACP group was created in 1975 by the Georgetown Agreement, and consists now of 79 member states, of which 15 are Pacific. These used to be colonies or dependent territories of EU member states. Originally, the purpose creating this group was the coordination of cooperation between the ACP states and the EU. Since then, their relationship has changed profoundly as the historical bonds between the regions and the EU's interest diminished. The EU gave priority to issues closer to home, such as the single market and new member states relatively poorer than the ACP states. The agreement's main aims are to help ACP states to gradually integrate into the world economic order, while recognising the strong interdependence between security and development. Europe is establishing Economic Partnership Agreements (EPAs), which enhance European companies' access to ACP markets and strengthen ACP producers exposed to increased competition with EU goods. (Malik 2011, 123–128)

[72] New Caledonia, French Polynesia, Wallis and Futuna, Pitcairn

[73] EPA about generous derogation to Rules of Origin for processed fish, which has positively influenced investments in the tuna canning industry in PNG

security, conflict prevention and migration, it has become a global challenge which is on the agenda of many international and bilateral meetings. (European Union 2013) In this context, the EU recognises the vulnerability of the region to climate change and its geostrategic importance not only for itself but also many strategic partners. The impact of climate change is predicted to intensify, thus undermining development achievements and sustainable growth. (EC 2012a, 2–5)

However, there are structural constraints faced by the island states and territories, which is why a joint declaration on climate change was launched between the Commission and the Forum Secretariat. Europe's strategy focusses on a limited set of priorities which are of significant matter to the Pacific and for which the EU has comparative advantages, such as sustainable management of natural resources, regionalism and governance. In addition to financial assistance, the EU brings added value through its collective experience and knowledge in confronting environmental problems. At the regional level, the European Commission is currently providing funds to the PIF through contribution agreements, which ensure a high degree of ownership (EC 2006, 3–8, 11)

The establishment of diplomatic missions in Suva (Fiji), Port Moresby (PNG), Vanuatu, Solomon Islands and Dili (Timor-Leste) clarifies the EU's interest in long-term commitment to the region. Seven Pacific Island countries have diplomatic missions in Brussels. (PIFS 2012) Furthermore, regular political dialogues take place at country and regional level, and were recently upgraded to ministerial level. However, dialogue with individual states is limited, which is why discussion primarily takes place with the main regional institution, the PIF, which has a mandate and coherent regional policies set out in the Pacific Plan. This dialogue traditionally follows immediately after the PIF leaders' annual summit, and is therefore called post-forum dialogue[74]. (EC 2006, 24)

During this dialogue, the Commission has the opportunity to meet PIF member state leaders and key regional partners. In December 2010, a Memorandum of Understanding (MoU) was agreed on at a Joint Pacific-EU initiative on climate change. It was signed by the PIF Secretary General and Development Commissioner Piebalgs in Strasbourg. It aims at facilitating the implementation of the Joint Declaration from November 2008 and attracting international funding. (EC 2011)

[74] Dialogue with 15 external partners, including the EU, China, France, the UK, Thailand, the USA, Canada and others.

The first high-level political meeting between the EU and the PIF Troika[75] took place in 2007, when the Nuku'alofa Declaration was adopted in Tonga. It established an enhanced EU-PIF dialogue to enable structured interaction between the two regions to increase visibility of the EU in the Pacific and vice versa. (EU and PIF 2007)

Additionally, a plan for action was prepared, to improve coordination at the United Nations, to establish Pacific friendly delivery methods and to promote a more coherent EU policy mix in the Pacific and a comprehensive climate diplomacy strategy. Policies range from trade cooperation, fisheries, and a research framework programme to the observation of elections and the strengthening of governance systems. (EC 2012a, 7–10)

5.2 Joint Pacific-EU Action against Climate Change

In several declarations and communiqués, the EU and the PIF express their commitment to address challenges posed by climate change, in terms of mitigation and adaptation. In September 2008, representatives met in Brussels at ministerial level for the first time. Both note that the UNFCCC and the Kyoto Protocol are the main framework for addressing climate change. The PIF leaders adopted the Niue Declaration on Climate Change in August 2008, committing themselves to protecting their regional environment and calling for the support of the international community. (EU and PIF 2008b)

Besides exchanging topics of mutual interest, such as regional security, trade and development cooperation, they welcomed the GCCA as a mechanism for enhanced political dialogue and exchange of experience between the EU and PIF. (Council of the European Union 2008) They identified the need for technical and financial support for the implementation of the Pacific Climate Change Roundtable and other activities. The PIFACC identified the following principles: improving understanding of climate change, education, training and awareness, contributing to global greenhouse gas reduction, implementing adaptive measures, governance, decision-making, partnerships and cooperation. (EU and PIF 2008b) Additionally, aid effectiveness is an important issue for PIF, which has adapted the Paris Principles to the Pacific context. These imply that climate financing should be delivered through a nationally suited method. (Council of the European Union 2008)

[75] PIF Troika: Prime Minister of Tonga and Ministers from PNG, supported by Secretariat General of PIF

The Joint Pacific-EU Initiative on Climate Change was launched in Strasbourg in 2010 by the PIF Secretariat and the Commission; and in March 2011, a Joint Action Plan on Climate Change was established in Vanuatu. EU Commissioner for Development, Andris Piebalgs, visited the island to launch and announce new programmes to fight against poverty and the consequences of climate change of up to €89.4 Million. He promised that €30 Million will be spent on strengthening Pacific integration through trade. Concerning climate change, adaptation projects would be implemented amounting to a total €8 Million. Actions include mangrove replanting, reforestation of watershed areas, rainwater harvesting and water conservation, as well as soil retention measures, introduction of drought/ salt resistant cultivars and others. A further €20 Million would be spent on the reduction of natural disasters, €12 Million for reinforcement of integrated management of coastal, terrestrial and marine environments in OCTs and €4.3 Million for humanitarian assistance for Disaster Preparedness and Risk Reduction. (EU 2011a)

The second ministerial level meeting took place in New Zealand in 2012, where the PIF expressed appreciation for the significant assistance the Pacific received from the EU over the past 37 years. The progress since the implementation of the EU-PIF Declaration on Climate Change in 2008 was reviewed. A joint Pacific-EU Plan of Action on Climate Change 2012 – 2014 to assist the Joint Initiative was established. This plan consists of three core priorities; namely to build a stronger Pacific-EU political dialogue on climate change, more effective cooperation and increased international support for the Pacific on climate change. Furthermore, it also includes sustainable economic development to support reliable transport, infrastructure and access to energy. An initial €92 Million from the 10th EDF and EU budget were intended to focus on Disaster Risk Reduction and Management, Sustainable Energy and Energy Efficiency and Community Resilience to Climate Change. (EU and PIF 2012)

The High Representative of the Union for Foreign Affairs and Security and Vice-President of the European Commission, Catherine Ashton, said:

> *This Joint Communication highlights the added value we bring as a political and development partner to the Pacific region. We want to go beyond our traditional donor-recipient relationship, and develop a more comprehensive partnership which can successfully address issues of global importance such as climate change*. (EC 2012b)

Since 2008, Commission-managed support on climate change in the Pacific increased politically and financially. Pacific representatives acknowledged that the

GCCA has effectively provided a platform for political dialogue and exchange for financial and technical cooperation since 2009. The communiqué states, that by 2012, all Pacific ACP states will have benefited from additional EU funding for climate change, especially through the GCCA. (EU and PIF 2012)

Because of the already mentioned structural constraints, delivery methods need to be adapted and thus limit the use of project approaches which tend to overstretch small administrations. As outlined in the Annex to the Joint Communiqué 2012, delivery methods for EU assistance in the Pacific were improved. To achieve sustainable results, the EU uses sector programmes and budget support, which align with national development plans and sector strategies. Policy dialogue and regular performance assessment contribute to an improved service delivery and institutional, policy and regulatory outcomes. (EU and PIF 2012)

In September 2013, Commissioner for Climate Action, Connie Hedegaard, represented the EU in the annual PIF meeting in Majuro, Marshall Islands, under the title “Marshalling the Pacific Response to the Climate Challenge.” Furthermore, she met bilaterally with several Pacific Island leaders, focussing on the effects of climate change in the region as well as on progress in finalising a new international climate agreement in 2015 and stepping up global action before 2020. Funding is estimated at €750 Million for 2008 – 2013. (Targeted News Service 2013)

A new framework to advance cooperation and coordination in climate change was provided by the renewed EU-Pacific Development Partnership set out in 2012 by the Commission and Catherine Ashton. Besides the initial resources for development and climate change for ACP states, the EU has made available a financial package of €110 Million. Through the GCCA, small island developing states in the Pacific are benefiting from financial and technical support either directly through national programmes or indirectly through regional programmes. (Targeted News Service 2013)

The EU supports several national as well as multi-country programmes. In addition to adaptive actions, other ongoing and planned interventions that belong to climate change adaptation strategies focus on renewable energy, energy efficiency and disaster risk reduction. Energy security and sustainability shall reduce the dependence on fossil fuels and improve quality of life. (EC 2011) The concern of this paper will be the support of climate change adaptation by the Global Climate Change Alliance.

5.3 The Global Climate Change Alliance

> *The Global Climate Change Alliance (GCCA) was launched in 2007 by the European Commission to strengthen dialogue and cooperation on climate change between the European Union (EU) and developing countries most vulnerable to climate change, in particular Least Developed Countries (LDCs) and Small Island Developing States (SIDS), which are hardest hit by the adverse effects of climate change.* (GCCA 2012a)

The GCCA is an initiative focussing on actions integrating climate change in developing countries' policies and focussing on adaptation activities. These are concentrated on the water and agricultural sectors, on disaster risk reduction and also on reducing emissions from deforestation and forest degradation, as well as enhanced participation of LDCs in the carbon market. The GCCA Support Facility[76] assists capacity-building in target countries since 2009. It improves knowledge on projected impacts of climate change, effectively integrates climate change vulnerability into development plans and budgets, identifies and prepares GCCA activities in special sectors. (European Communities 2009, 8)

The GCCA's objective is to build an alliance on climate change between the EU and developing countries that are most affected and have the least capacity to cope with climate change. The idea is to add adaptation-related funding to existing budget support programmes. (Carbon Market Solutions 2010, 20, 21) The GCCA makes its contributions through a double layer of action, consisting of dialogue and exchange of experience and the cooperation through country or regional interventions. Thereby, it sees itself as promoting the transfer of knowledge from the field and informs the international climate change debate and decision-making at the highest level. (EU 2012, 4) It is working together with various regional organisations such as the PIF, SPC, SPREP and USP.

In the Pacific region, the focus of the initiative is applied research for better understanding of vulnerability of the communities and for developing tools to assess vulnerability and develop adaptation plans. At the regional level, activities include for instance the setting up of a regional mechanism for access to international climate funding. At the national level, national climate change adaptation roadmaps are produced. Locally, field projects are implemented from which practical experience is drawn. Both top-down and bottom-up approaches are applied and show that this method has the best chance of enhancing the adaptive capacity of Pacific islanders. Thus, low-input community adaptation projects will be implemented, which are

[76] Compiles and analyses existing climate change data.

reproducible and will be accompanied by a best practice promotion. (EU 2012, 25, 52, 60)

Major investment will go to science and technology, as well as human resources and institution building to reinforce capacity in various areas essential for Pacific Islands' sustainable development, such as fisheries, biodiversity and disaster preparedness. The EU is of the opinion that assistance should be more concentrated with a stronger focus at regional level to be more efficient. (EC 2006, 10)

Stakeholders interested in support have to contact the GCCA directly to discuss potential projects. Preconditions for countries to be eligible for funding are that they have already received budget support through the European Commission (EC) or other donors, that there is an EC Delegation with capacity to prepare and follow up the implementation of the GCCA programme and that the country is involved in UNFCCC negotiations. (Climate Finance Options 2013)

There are two regional projects and five national, which will be outlined in detail on the following pages.

5.4 Funding

From 2008-2012, the GCCA has in total committed €243 Million worldwide, which originate from the budget of the Commission, some Member States and the 10th European Development Fund (EDF). This includes Fast Start Finance (FSF) for immediate action on climate change in developing states pledged at the UNFCCC 15th Conference of the Parties in Copenhagen 2009. So far, FSF from the Commission, Ireland, Estonia and Cyprus have provided approximately €171 Million to interventions of the GCCA around the world. In 2013, additional €47 Million were provided.

The origin of the funds varies, as outlined in a diagram on the GCCA homepage. 91% originate from the EC budget, 75% from EC budget FSF, 40% stem from the EDF, 33% from EU Member States FSF and 5% from EU Member States. GCCA support finances mainstreaming of climate change into national development planning in over half of the ACP states. Supported adaptation programmes cover a range of climate-sensitive sectors, such as land water management, agriculture, coastal zone protection, disaster risk management, forest management and clean energy. Thus, programmes in Africa, Asia, the Caribbean and the Pacific aim at strengthening the capacity of the most vulnerable developing countries to tackle climate change. In 2008-2012, Africa received €124 Million, the major share of

funding. The Pacific region received €38 Million of total funds for regional and national projects. (GCCA 2012a)

Besides the GCCA, the EU is investing in two main priorities under the 10th EDF 2008-2013, namely regional economic integration (€45 Million) and sustainable management of natural resources and the environment (€40 Million). Another €10 Million will cover participation of non-state actors and technical cooperation and support for the PIF Secretariat, who is the Regional Authorising Officer of the EDF. Other funding comes from EU Member States' bilateral funds, the EDF inter-regional funds, the European Investment Bank and others. (European Union 2013)

Assistance for the Pacific has increased by about 60% between the 9th and the 10th EDF; overall, the region receives €735 Million for the period 2008-2013. Of this amount, approximately €665 Million go to Pacific ACP states and €70 Million to Pacific OCTs. Additionally, €27.7 Million were mobilised under the Vulnerability Flex mechanism 2009 and 2010, to help the most vulnerable Pacific countries to cope with the Financial Crisis. The Pacific will also receive a share of 'all-ACP' programmes such as the Disaster Facility (total €150 Million), the Migration Facility (total €25 Million) and the Science and Technology research programme (total €20 Million). (EC 2011) On the following pages, the projects of the GCCA in the Pacific region will be introduced.

5.5 Regional: Pacific Small Island States Project

The Pacific Small Island States Programme supports the nine governments of the Cook Islands, FSM, Kiribati, RMI, Nauru, Niue, Palau, Tonga and Tuvalu. From 07/2011 until 12/2014, €11.4 Million will be spent mainly in agriculture, coastal zone management, health, infrastructure, overall development, poverty reduction, water and sanitation. Implementing partners in the region are the Secretariat of the Pacific Community (SPC) and the Secretariat of the Pacific Regional Environment Programme (SPREP). (GCCA 2012c)

In this programme, the above named countries will receive support in tackling the adverse effects of climate change. Long-term strategies and approaches to adaptation planning are at its core and will contribute to a more coherent, coordinated, effective and mainstreamed aid delivery at national and regional level. The project is administered through the Strategic Engagement, Policy and Planning Facility of the SPC and contributes to its Climate Change Engagement Strategy. (SPC 2011b)

Assistance in design and implementation of on-the-ground climate change adaptation projects are at the core of this programme. On the long run, it aims at supporting the countries to advance from ad hoc project-by-project adaptation to a programmatic approach that should ease access of countries to new sources of funding, such as national and sector budget support. National support available over the course of the project amounts to €500,000 for adaptation projects in each country and to €54,000 for national coordination in each country. Additional funding for technical assistance and training can also be claimed. (Cambers and Hemstock 2014)

It consists of four components: To begin with, climate change is to be mainstreamed in national and/or sector response strategies. Furthermore, well-articulated sectoral adaptation strategies addressing budget support criteria will be advanced and national climate change adaptation projects will be implemented. Additionally, streamlined technical assistance supporting national adaptation responses will be delivered collaboratively by regional organisations. (SPC 2011b)

At the national level, countries are better equipped to mainstream climate change in policies, planning processes and country budgets. Moreover, concrete adaptive actions are developed and implemented. Adaptation roadmaps are produced to integrate climate change resilient strategies in development policies and budgets of governments and to implement initial activities foreseen in the roadmaps and other strategic adaptation priorities. Existing plans and ongoing actions are reviewed and coordination workshops with important stakeholders organised. So far, climate change profiles which provide background information on expected climate impacts, responses, economic and financial circumstances and development strategies haven been produced for the nine states. (GCCA 2012c)

In the following, examples of national projects under the PSIS programme framework are provided. On the Cook Islands, environmental monitoring takes place to enhance community lives and build resilience in the low lying atolls of the state. This will continue for a duration of two years and costs €500,000. It is aimed at improving the environment for pearl farming and artisanal and small scale commercial fisheries in the northern atolls. (SPC 2011b)

In Kiribati, a workshop on health issues took place in January 2013. Health is noted in Kiribati's NAPA (National Adaptation Programme of Action), as the country faces problems with diseases caused by water quality, food safety and vector control works. Mosquitoes are breeding in abandoned vehicles and waste, abetting the

spread of Dengue fever. A project worth about €500,000 is planned to improve the implementation of Environmental Health Surveillance and response to climate sensitive health risks, which will run two years and three months until December 2014. (SPC 2011b)

A water project is conducted in Nauru, where people are dependent on rainwater but lack sufficient storage mechanisms. For two years and €500,000, rainwater tanks are installed among other measures to increase the rainwater harvesting capacity. In advancing the supply of quality potable water to households, this project seeks to build people's resilience. (SPC 2011b)

A similar project on augmenting rainwater harvesting is executed in Niue. In three villages, 5,000 litre water tanks are provided to each of 214 households, accounting for 44% of the population. It is building on an existing project by GEF and AusAid, thus ensuring coverage of the whole island. Presently, water stems mainly from an underground aquifer. With the tanks, supply of potable water will be reliant also during extreme events. The project takes two years, €500,000 are invested. (SPC 2011b)

In the Republic of Palau, it is also the water sector which is especially vulnerable to climate change on the outlying islands. These are affected by sea-level rise, shifting rainfall patterns and warmer temperatures, which impact the islands' water lenses. Thus, an assessment of water resources and climate related risks takes place, as well as reduction of leakages, installation of appropriate water harvesting and a campaign for public awareness and education. With a two year and €500,000 project until December 2014, household-level resilience is to be increased. (SPC 2011b)

A project in eastern Tongatapu, the biggest island of Tonga, focusses on six low-lying communities which are vulnerable to coastal erosion and sea-level rise. €500,000 are spent over two and a half years to implement and evaluate different coastal protection measures such as the construction of permeable groynes[77] and small detached breakwaters, sand replenishment and planting of site-appropriate plant species, e.g. mangroves. It is implemented by the Government of Tonga and managed by the Ministry of Lands, Environment, Climate Change and Natural Resources and the Ministry of Infrastructure. It follows a participatory approach of government ministries and project staff in engaging the local communities in the

[77] A wall or jetty built out from a riverbank or seashore to control erosion.

design of the project and focusses on building the resilience of 3,367 people. (SPC 2013) This is expected to provide lessons and best practices for engineered coastal protection systems for other vulnerable coastal areas in Tonga and the Pacific. The GCCA has more projects and workshops across the region to help the countries adapt to climate change impacts. (SPC 2011b)

At the regional level, capacity to support national adaptation needs and establish regional coordinating mechanisms is strengthened. Workshops, conferences and seminars are and will take place and a regional mechanism to support access to international funding will be set up. (GCCA 2012c)

The First Steering Committee Meeting took place in Suva, Fiji, on May 28th-29th 2012. Participants from all nine states, regional organisations and the EU were present to learn about the project's scope and to plan activities. A second meeting took place on December 3rd 2012, to discuss progress made with the project. Most countries then had determined their focus of adaptation and some were already working on detailed project design. Additionally, 14 country missions had then taken place to advance project planning. National coordinators are by now recruited and several training activities on climate change finance and other climate related issues were conducted.

Representatives presented progress on the project in their respective countries. Problems identifying adaptation needs were discussed and the project was rated on a scale from A to D, with A being the highest rating and D implying serious issues. Its 'relevance'[78] was marked with B, as well as 'impact prospects' and 'potential sustainability'[79]. However, 'efficiency'[80] was ranked a C, because of project delays in the first six months due to only 44% of resources being available. "Effectiveness"[81] also received a C, because of good quality outputs and achievement of purpose but too tight time schedule. Moreover, a risk management strategy is missing, but under construction. (SPC 2011b)

[78] How well the project was designed to support existing international, regional and national conventions and environmental agreements.

[79] How well they considered future plans for activities that were implemented and in general the overall future plans for the project.

[80] How well the project team spent project funds to implement project activities on time.

[81] Impacts of project activities on demonstration sites/communities; looked at positive and negative impacts that resulted from activities implemented and how well they addressed the challenges that arose out of it.

5.6 Regional: Support the EU-GCCA through capacity building, community engagement and applied research

This programme is the GCCA project on which the most information is available. It is the Pacific part of the worldwide Intra-ACP programme of the GCCA, which focusses on mitigation and adaptation in LDCs and SIDS; under the guiding theme ‘sustainable development’. In the Pacific, the Intra-ACP Programme supports the regionally developed PIFACC, a common strategy for action on climate change. The programme’s major objective is “[t]o improve understanding of climate change regionally through formal and informal training, practical on-the ground adaptation activities at community level, and applied research.” (GCCA 2012b)

The implementing partner in the Pacific is the University of the South Pacific's Pacific Centre for Environment and Sustainable Development (PACE-SD), which recruited an In-Country Coordinator for each state to coordinate the implementation of projects. The project covers 15 Pacific ACP states, of which eleven have a USP campus, for a duration of four years investing €8 Million since January 2011. The programme runs until December 2014. The region's capacity to adapt to the impacts of climate change is to be developed and strengthened by training national and regional experts on issues such as climate change, adaptation and development and implementation of sustainable adaptation strategies for communities. The USP expects an evolving network of national and regional experts on climate change who can support communities, governments, NGOs and regional organisations addressing climate change threats through sustainable and long-term approaches. (USP 2004a)

In a press release on the High Level Conference in Vanuatu in March 2011, Commissioner for Development Andris Piebalgs, endorsed the project at USP. Catherine Ashton claims it to be especially valuable because of its multifaceted approach to the challenge of climate change adaptation. As it is implemented in communities, it will directly benefit the people who are most vulnerable. Professor Rajesh Chandra, Vice-Chancellor and President of USP, is grateful for the commitment of the EU. (EU Delegation Fiji 2011)

Planned activities are divided into three components: Capacity Building, Community Engagement and Applied Research. They are supposed to work separately but link up, for instance in terms of research results influencing community adaptation strategies. And in turn, community work can also provide crucial lessons to be integrated in university courses. University students themselves will add

practice to theory by connecting their studies with applied research and community engagement. These counties include: Cook Islands, Fiji, Federated States of Micronesia (FSM), Nauru, Niue, Papua New Guinea, Palau, Republic of the Marshall Islands (RMI), Samoa, Solomon Islands, Timor-Leste, Tonga, Tuvalu and Vanuatu. (USP 2004a)

5.6.1 Component 1 – Capacity Building

The first component implies formal and informal training, aimed at bringing forth local experts, who can support and guide governments, NGOs and regional development partners that often lack deep knowledge on climate change. Additionally, they can train people at community level in adaptation. (USP 2004b)

The formal part of training includes post-graduate, master and PhD level courses of study at the University of the South Pacific, primarily intended for local people. On the one hand, they are educated in adaptation strategies, Disaster Risk Management and Environmental Impact Assessment, on the other, they are also taught the scientific basics such as terrestrial and aquatic ecology and climate science. The post-graduate course shall provide background knowledge to graduates working for governments and NGOs who need to be familiar with climate-related issues. The practical part includes community projects and targeted research. (USP 2004b)

The informal training consists of capacity building workshops and training of country coordinators to assume their role as future trainer on climate change. Proximate, these country coordinators can then train relevant actors in their respective countries who will organise workshops for local communities. (GCCA 2012b) Furthermore, knowledge and skills focussed on climate change issues and practical management skills are to be improved among practitioners in the region. Topics and skills will be determined according to needs and demands of practitioners. (USP 2004b) Dialogue and coordination activities are supposed to promote effective networking with national and regional partners on climate change issues. (GCCA 2012b)

5.6.2 Component 2 – Community Engagement in Adapting to Climate Change

The purpose of this component is an improvement of the resilience of local communities who gather skills to develop, implement and sustain long term adaptation strategies. It will support about 40 communities in the 15 Pacific ACP countries to adapt to climate change. At the centre of these projects will be the vulnerable sectors identified by National Adaptation Programmes of Action (NAPAs) and National Communications to the UNFCCC. It is important that projects are inclusive and ensure the future uptake by entire communities. (USP 2004b)

Furthermore, awareness raising includes school children to begin climate change education at an early age. A quiz on climate change took place on television, and a board game was developed. (Samani 2012b, 57) After the success of the first climate zone quiz, Vanuatu organised its own quiz which took place in December 2013 between schools. (Samani 2013b, 6) This is accompanied by a regional review of good practices and by securing ownership on the side of practitioners of the community. Participatory community engagement through the Locally Managed Climate Change Adaptation Network (LMCCA) will help to distribute lessons learnt at demonstration sites and good practices to other communities in the region. (USP 2004b)

The selection of project sites takes place in collaboration. Relevant stakeholders in the respective state are contacted to provide a list of three to six potential sites. These sites undergo a rapid vulnerability and adaptation assessment conducted by an ICC, who assesses the level of vulnerability[82], adaptive capacity[83], need[84] and feasibility[85] of the project to adequately address the identified vulnerability within the funding capacity of the project. The assessment should take one day depending on weather conditions and the availability of community representatives for key informant interviews. Visual observations and interviews take place to assess physiological characteristics[86] of the site and surrounding areas, socio-economic conditions[87], water resources and supply[88], health and sanitation[89], food resources

[82] Based on livelihood sectors water resources, health and sanitation, food resources and food security, energy resources and energy security. Additionally, vulnerability to disasters, sea-level rise, cyclones etc is measured by type of housing, elevation, reef system and other indicators.

[83] Based on approximate aggregate income of the community per year divided according to the number of households to calculate the income per household per year and then further calculated to a daily basis.

[84] Level of need related to level of community commitment to past projects and level of community interest.

[85] Determined by population size and availability of funding.

[86] Geomorphology, drainage patterns, vegetation cover, land use types and patterns.

[87] Population, distribution, community management structure, sources of income, farming system,

and security[90], energy sources[91], disaster risk management[92] and community needs[93]. After the assessment, three sites will be selected for the GCCA projects. (PACE-SD 2012, 3–16)

5.6.3 Component 3 – Applied Research

This component intends to integrate scientific understanding, climate projections and local knowledge into the process of creating appropriate adaptation strategies to enhance resilience and diminish vulnerability. The development of tools to assess vulnerability, monitor and project climate change, and the development of adaptation plans are crucial. Climate models will be analysed, proved and improved if necessary; to adjust them to national and local scales. Furthermore, a series of studies on the projected impacts of climate variability and extremes on economic sectors and biophysical regions will be conducted. Outcomes will inform the development of appropriate adaptation strategies and practices, which also involve traditional knowledge. (GCCA 2012b)

Additionally, the USP established an online Climate Change Knowledge Centre, which accumulates data and reports from throughout the region. It holds relevant technical data on Pacific-based climate science, documents on the impacts of climate change and variability, documents on the inclusion of traditional knowledge, a catalogue of good practices and lessons learnt in community adaptation projects. Research assistants continuously work on the collection and collation of information for the best practices report, while twelve fact sheets on climate change have been published on the USP homepage. A community resources section provides methodology for both rapid and full assessments and a toolkit for climate change awareness. Soon, a catalogue of all completed assessments will be available for download. (GCCA 2012b; Samani 2013b, 4)

---

fisheries, income, development plans, resources management, investment plans

[88] Prominent source of water, availability throughout the year, quality, distribution system, types and capacity of storage for community and households

[89] Health services facilities, nearest health centre, water borne diseases, vector borne diseases, other diseases, health report

[90] Total land availability, types of food sources, productivity levels, area of fishing ground owned, main fish types, main non-fish types as food sources, productivity level of resources

[91] Key energy sources for cooking, lighting

[92] Types of infrastructures, disaster management plan existence, effectiveness, evacuation centre

[93] Number of projects currently implemented by community itself and through external assistance, willingness to participate in EU GCCA project if their community is selected, level of in-kind contribution willing to provide for project, level of cash contribution willing to provide

5.6.4 Project Progress

Biannual reports on the progress of the project are published on the USP homepage. Challenges outlined in the Mid Report from June 2012 included the recruitment of In-Country Coordinators who are difficult to find because skilled potential personnel tend to take more lucrative positions. They are essential as they engage with people at community level, conduct climate change awareness activities, work with stakeholders and identify sites most vulnerable. Concerning Component 2, some activities were not on schedule. In Component 3, problems were faced in building the technical capacity to work with large data sets, in accessing meteorological GIS data for individual countries and in translating weather and climate projections into products useful for the communities. The USP identifies the hardest part to be the bringing about of a behaviour change for adaptation. It knows that sustained communication through traditional and non-traditional methods will be necessary. Participatory solution finding and engagement with the community are key for a successful adaptation process. (Samani 2012a, 12–51)

In the December 2012 report, the implementing actors admitted that the programme started a full year behind schedule but nevertheless managed to complete two years of work in one. Problems finding ICCs persisted in Palau and the Federated States of Micronesia. In the Marshall Islands, the ICC was removed on request of the government. Memorandums of Understanding were agreed on with organisations who filled this position with their staff. Mr Thierry Catteau, working for the EU Delegation in Fiji, undertook a one week long monitoring and assessment of the GCCA projects, which were graded on a scale from A to D. The categories outlined in the PSIS project also account for this one. On ‘relevance and quality of design’ the project received a B, ‘efficiency of implementation to date’ a B, ‘effectiveness to date’ a C, ‘impact prospects’ a C and ‘potential sustainability’ a B. (Samani 2012b, 2–11) Significant progress in 2012 has been made in training personnel in 15 Pacific ACP states who can assist their governments and communities in climate change adaptation initiatives. (Samani 2012b, 30–50)

Until June 2013, 62 students graduated with a postgraduate diploma, 30 full vulnerability and adaptation assessments were completed, 78 Climate Ambassadors were trained in three sub-regional training workshops and the website and Knowledge Centre have been launched. Four countries had developed their Community Adaptation Plans and were in the process of implementation. The monitoring and assessment of the programme showed the same outcome as in the

Annual Report 2012. (Samani 2013a, 2–29)

The latest progress report from December 2013 provides an extensive summary of project activities and achievements in 2013. Regarding the project management, the total staff required to implement the project was in place during this reporting period. However, there has been a limited number of academic staff compared to the increasing number of students enrolled. A MoU for internships in climate change related agencies in the region was endeavoured, so that students can gather experience and agencies can learn from the knowledge acquired during their studies. Some alumni are currently working as lead negotiators for AOSIS, the Group 77, the GIZ, as lecturers and research assistants.[94] (Samani 2013b, 5–13)

A monitoring and evaluation officer is working with the 15 ICCs to develop indicators and assess baselines for their respective adaptation plans. Moreover, an independent evaluator conducted a Results Oriented Monitoring (ROM) in October 2013, assessing the project on the same five major criteria[95] also applied for earlier evaluations. The result showed an improvement from the first ROM in October 2012. (Samani 2013b, 5–9)

Table 5.6.4 Evaluation 2012 and 2013 (Samani 2013b, 9)

Criteria	Grade result 1st ROM 2012	Grade result 2nd ROM 2013
Relevance and quality of design	B	B
Efficiency of implementation to date	B	B
Effectiveness to date	C	A
Impact prospects	C	B
Potential sustainability	B	B

Concerning component one, in total 65 students graduated with a postgraduate diploma, 27 scholarships were awarded, and a Disaster Risk Management course was developed, which registered 33 students for this period. In total, 78 Climate Ambassadors were trained in sub-regional trainings on disaster risk management (DRM) and climate change adaptation (CCA) in all three ethnic regions and another 516 Climate Ambassadors were trained in national trainings. All of the 15 countries have their own In-Country Coordinators now, which were trained on DRM and climate

[94] To achieve the objective to strengthen and develop Pacific countries' capacity to adapt, it is crucial that students trained under the project remain in the region to support governments, NGOs and regional organisations in their work on climate change.

[95] Objectively Verifiable Indicators of the project objective, purpose and result

change adaptation, and seven students attended the COP19 negotiations meeting in Warsaw. (Samani 2013b, 3–39)

Concerning component two, important steps have been taken. Firstly, the seven Cs[96] of climate resilience were incorporated into all community based trainings to ensure sustainable changes to take place. Thirdly, 101 rapid assessments were conducted and a total of 43 communities were selected for participation in the development and implementation of climate change adaptation plans in 14 countries.[97] 37 of these have completed full vulnerability and adaptation assessments and are planning adaptation schedules. Nine of these countries are in the process of implementing their community adaptation plans. Some states have begun to train the pilot sites on technical skills necessary to implement the adaptive measures. Funding partners were identified to co-finance projects in four communities in two countries.[98] Furthermore, National Project Advisory Committees (NPACs) were established in all 15 project countries and community awareness workshops were successfully conducted. FSM prepared climate change awareness flip charts which were printed and distributed to all ICCs by the Micronesia Conservation Trust to support them in conducting awareness programmes. (Samani 2013b, 3–11)

An important step taken in component three was the Climate Services Forum held in USP in January 2013 which 200 people attended to receive training in tropical cyclones, coral reef health, climate data sets and sea-level rise. Conferences and workshops with participation of leading climate change specialists and authors of scientific reports from around the world took place. In addition, 81 students were trained in the use of specific tools for data modelling and analysis, such as DSSAT and R Stats. (Samani 2013b, 4–12)

5.6.5 Country Priorities and Activities in December 2013

On the Cook Islands, the two pilot sites Te Tautua Village and Omoka Village on Penrhyn Island have finalised adaptation plans, but did not start implementation by the end of 2013. Te Tautua focusses on water security, which implies the provision of water tanks to inhabited households. Omoka Village prioritises coastal protection, which entails the safeguarding of small boat vessel landings and the provision of

[96] Collaboration, community, culture, conduct, conservation, commitment, confidence

[97] Only RMI still had to select its demonstration sites in December 2013.

[98] The actions identified in adaptation plans contain a variety of appropriate actions that cannot be funded by this project. However, they provide a list of feasible activities which can be presented to other funders to reduce the duplication of assessment and planning activities.

materials to reinforce the foreshore. The distance of the project sites from Rarotonga turns material delivery into a time consuming issue. A monitoring visit to evaluate the implementation will take place in July and August 2014. (Samani 2013b, 17, 18)

Three pilot sites were selected in Fiji, where implementation partly started. In Korolevu, Navudi and Rokosalase communities, a water supply system has been implemented in August 2013. Gravity fed techniques collect surface water in four 100,000 litre water tanks to assist 400 people. The project takes place in cooperation with the Labase Cane Producers Association who provided funding of additional FJD35,000 and the Rotary Pacific Water for Life Foundation which provides technical assistance for the water system design and plumbing training. Water committees and rules on the sustainable use of water were established. The short lived project duration and the coincidence of the implementation with the sugarcane harvesting season, made it difficult to achieve full community participation. In Yanuca, Laucala and Taveuni, the main sector identified is also water. A gravity fed water system from a spring is constructed and water is collected in 10,000 litre water tanks to supply water to 95 people for washing and bathing. Implementation started in March 2014. Transport proved to be challenging due to isolation and sea conditions. (Samani 2013b, 19)

In FSM, three communities have been selected as pilot sites, but vulnerability and adaptation assessments were still in progress at that time. The project activities are determined after all assessments have been completed and approved by the NPAC. Adaptation plans were scheduled for February 2014. Nevertheless, all three sites have done activities on climate change education and outreach. In FSM, coastal erosion impacts community settlements and challenges residence, livelihood and food security. Full commitment and a sense of ownership in the projects at community level are still a challenge. (Samani 2013b, 20)

Adaptation action plans still had to be completed in the three selected communities of Kiribati. Ewena on Abaigang Island and Buariki on North Tarawa focus on rainwater harvesting, while Kuria Island concentrates on brackish water reticulation. Implementation is conducted from March to August 2014. Climate change awareness trainings take place in the sites, as well as workshops and value added trainings on food, nutrition, literacy and other issues. Only in Ewena, a development committee has been set up. Unfortunately, the weak traditional governance could cause a division of the communities. Thus, it is best to keep close to the elected mayor and local council to support the project. (Samani 2013b, 21)

In the Republic of the Marshall Islands, six potential sites were selected, but no vulnerability and adaptation assessments to decide for the final three took place by the end of 2013. The NPAC decided to conduct six full assessments because of the distance and time spent travelling to each site. The three sites not selected can use the assessments to find funds from other sources. So far, a national training was conducted and a community clean-up day was sponsored by the GCCA in one of the sites in preparation for the PIF. (Samani 2013b, 22)

Implementation already started in the three pilot sites of Niue. Makefu community focusses on a sustainable development plan, which entails the relocation of a house to the upper terrace to be run on solar heat and becoming geared up to receive a rainwater harvesting catchment. Tamakautoga concentrates on food security, i.e. planting of coconuts, fruit trees and vegetable gardens, and on training in cleaning rainwater harvesting catchments under the GCCA PSIS project. A sustainable development plan is compiled. In Avatele community, priorities are the completion of a draft sustainable development plan, the construction of charcoal stoves as part of renewable energy and the distribution of solar lights and radios for the cyclone season. There is an overburden with other community obligations such as church and NGO work, which led the government to formulate a new policy: a four day week but five day pay situation might enable the communities to use the free Friday to catch up on the implementation of the project. (Samani 2013b, 23)

In Palau, the vulnerability and adaptation assessments had not been completed for the three pilot sites by the end of 2013. Kayangel, Noaraard and Ngaromau state completed them in February 2014, but conducted national trainings on the climate change toolkit already in 2012. The adaptation plans were completed in March 2014 in all three sites, so that implementation could begin in May. The fact that the budget for the assessment was approved in November 2013, coupled with typhoon Haiyan, resulted in delays in planning of trainings for the assessments. (Samani 2013b, 24)

Implementation already started by the end of 2013 in the two selected pilot sites of Nauru. The priority of Meneng Terrace community is the restoration of an effective brakish water reticulation system to provide an alternative non-potable water source. However, some land-ownership issues still need to be settled. Meneng Statehouse community has the same priority. The projects were planned to be implemented until April 2014. (Samani 2013b, 25)

In Samoa, the projects in the three pilot sites have been implemented and evaluated by the end of 2013. Faleaseela concentrates on food security and the subsequent provision of nursery to assist food security issues. The nursery has not been planned in December 2013, since the village council was busy fund-raising for a Catholic Church building. Ownership issues challenge the planning. Falealupo prioritises water and health and has already undertaken water and health adaptive actions. A donor workshop assists the search for funding and water management training is done. Furthermore, a health inspection is to be finished by the end of 2014. USAID, who is providing water tanks, only progresses slowly. Sapapalii has the same priorities as Falealupo, but faces challenges from the availability of the community, programme synchronicity with resource agents, land issues and unsupportive government programmes. (Samani 2013b, 26)

On the Solomon Islands, the implementation in the three pilot sites started in the end of 2013. The first priority of Nagotano community is rainwater harvesting, followed by health and sanitation. Five water tanks were distributed and a water committee was set up. Local people are supportive of the project but there currently is a low level of knowledge. Aorigi community, where wells are unfit for consumption, has the same priorities, but is challenged by remoteness, finance and a low level of knowledge about climate change issues. Besides rainwater harvesting, Ngawawa community also focusses on coastal protection. All communities received short awareness presentations during the assessments and the adaptation training. Its wells are inundated with salt water, its population increases and the land for gardening decreases. Transportation is costly and seldom and the level of knowledge on climate change is generally low. A general problem for all sites is the difficult access due to missing shipping schedules, expensive travelling and bad weather. To overcome these issues, more focus will be put on climate change trainings at community level and in schools. In addition, selected sites for phase 2 will be more accessible and less expensive in terms of transportation. Implementation in the sites was completed in March 2014. (Samani 2013b, 27, 28)

Implementation was then ongoing in the three pilot sites of Timor-Leste. Ulmera community focusses on the rehabilitation and innovation of the existing gravity flow water supply system. Additionally, it wants to promote the proper use of water and replant mangroves to increase fish resources. Laco-Mesac community wants to construct and rehabilitate its gravity flow water supply system too, in addition to planting trees uphill and around a spring to protect it. The water committee

is to be strengthened and efficient water use will be promoted. Furthermore, tree planting is supposed to reduce the intensity of landslides; and traditional laws that prohibit slash and burn techniques and illegal logging will be strengthened. Saelari community also wants to construct and fix its water system. A gravity water pump is to be rehabilitated and the community trained to maintain it. The use of clean water will be promoted, awareness on the importance of forest and nature conservation will be raised, and reforestation will take place in the high landslide risk zone. The major challenge in all communities is to finish the implementation of all activities on time. (Samani 2013b, 29)

The implementation in Tuvalu's three sites had started by the end of 2013. Nukulaelae Island prefers a water project. Seven tanks of 10,500 litres were installed in December 2013. The community monitors and evaluates its impact. Nanumaga Island focusses on a bio-gas project for cooking purposes, which was implemented between March and May 2014. Funafuti Island also favoured a water project. The installation of overhead water tanks took place from March to May 2014. The long duration of material transportation from Fiji to Funafuti and to the project sites caused high costs for travelling to the two outer island project sites. However, good contacts with stakeholders existed to assist with transportation and training at community level. (Samani 2013b, 30)

Tonga's three project sites also started implementing by the end of 2013. Tu'anekivale community favours a water project to renew its water tank reservoir and its stand. The water committee will require training when the project is implemented. Ha'afeva community requires rainwater tanks for a primary school, a health clinic and 14 households. Popua community prefers food security activities, such as duck farming and vegetable gardens. The communities struggle to obtain enough funds for the implementation; they need other stakeholders to take up some activities as their own. (Samani 2013b, 31, 32)

Implementation also started in Vanuatu’s three project sites by the end of 2013. Pele Island community requires a piped water system, practical training on well construction for rainwater catchment and improved agricultural farming systems. An important partner in the community is the GIZ, who did most coastal rehabilitation work already. In Lonamilo community on Tanna Island, people favour adaptive actions in fish farming, poultry farming, a water supply system and training on rainwater well construction. A fish pond had been constructed but no funds are available for water catchment management. Tassiriki on Moso Island improved its

agriculture farming system and poultry farming. In February, families concentrated on the preparations for sending their children to school, so community work was picked up again in March. (Samani 2013b, 33, 34)

In PNG, implementation started in its three pilot sites, too. The priority of Maili Island are water tanks and a water committee. Transportation is expensive due to its isolated location as outer island. Water tanks are the priority of Manumanu community too, in addition to sea walls. Coastal erosion is another problem, but there is not enough funding to deal with this issue. Inauabui community focusses on water tanks as well. The implementation was disturbed through the by-election and the betel nut ban in Port Moresby which affects the people dependent on betel nut trade. Again, high transportation costs due to isolation were problematic and people are indifferent to adaptation because of problems in other important areas. (Samani 2013b, 35, 36)

5.7 National Projects

5.7.1 Papua New Guinea

PNG is home to one of the most significant areas of largely intact tropical forest in the world, as 60% of the total area of the country are covered by natural forests. However, it was estimated in 2002, that the combined annual rate of deforestation and forest degradation was 1.41%.

From October 2013 until October 2016, €8.49 Million are provided to the country by the GCCA (€6 Million) and the UN-REDD (€2.49 Million). The project allocates technical support to the PNG Forest Authority[99] and the Department of Forestry of the University of Technology to set up a national forest monitoring system in support of REDD+ participation and establish a high level platform on forest governance. It involves the government of PNG, the EU Delegation in Port Moresby and the Food and Agriculture Organisation (FAO) of the UN.

Besides its contribution the country's climate change policies and measures on mitigation, the capacity of the Forest Authority and the UT Department of Forestry will be improved and staff provided. Field and technical training will be designed and delivered, and studies on forest and tree characterisation will take place. The project will complete the first multi-purpose national forest inventory and conduct field data collection combined with a satellite land monitoring system. (GCCA 2012d)

[99] Main institution concerned with the implementation of climate change mitigation and adaptation in PNG's forestry sector

5.7.2 Samoa

In Samoa, 70% of the population and infrastructure is located in low-lying coastal areas and 50% of the population is living in the Apia urban area and Northwest Upolu. Because of projected sea-level rise and its consequences[100], environmental sustainability and disaster risk reduction are priorities of Samoa's Strategy for Development[101], in which climate change is identified as cross-cutting issue.

In this project, €3 Million will be provided by the GCCA from July 2012 to June 2015 in support of climate change adaptation for the Samoan water sector. Cooperation takes place with the Land Transport Authority, the Water Sector Steering Committee, the Cabinet Development Committee, the Ministry of Works, Transport and Infrastructure, the Ministry of Natural Resources and Environment and the Ministry of Finance. Adaptive measures include the support of Samoa's development strategy by integrating climate change into national and sector development planning, budgeting and implementation and the integration of adaptation into the *Water for Life* sector plan 2012-2016.

So far, the priority drainage infrastructure for storm water flows was restored and upgraded, based on climate change projections in flood-prone central Apia. The strengthening of public-private partnerships for the routine maintenance has resulted in an improved performance of the drainage network. Six watershed management plans have been finalised and approved by the responsible committees. Additionally, community engagement programmes are taking place, such as river clean-ups in affected communities, community seminars, educational programmes and radio talk back shows. Clear benefits arose from applying integrated approaches to address both climate change adaptation and disaster risk reduction. (GCCA 2012e)

5.7.3 Solomon Islands

> *There is growing concern, seeing first-hand the impacts of climate change as it slowly erodes the very low-lying atoll of Ontong Java. With a number of villages the rising sea level is slowly eating up right to their doorsteps.* (Supa 2012)

This €2.8 Million project supports the capacity of the Solomon government in terms of policy enhancement, coordination and implementation of its national climate change strategy in line with its NAPA and National Disaster Risk Management Plan (NDMRP). It is running from March 2011 until March 2014 and cooperates with the

[100] Coastal erosion, loss of land and property, dislocation of island settlements, more frequent and severe floods

[101] Samoa has developed a framework of strategies, plans and governance structures that are considered best practice in the Pacific region

Ministry of Environment, Climate Change, Disaster Management and Meteorology and the Ministry of National Planning and Aid Coordination. Budget is allocated to these institutions to carry out climate change and disaster risk reduction activities. People living on low-lying atolls, artificially built islands and other low lying coastal areas are focussed on.

A vulnerability assessment of affected people and high-risk communities, the costs of climate change adaptive measures and guidelines for human resettlement projects are to be completed. Capacities in the Climate Change Division of the Ministry of Environment remain overstretched as addressing these has been slower than anticipated. Challenges for effective coordination persist due to the large number of actors (ministries, donors, NGOs) and the broad definition of the climate change sector, which includes adaptation, mitigation, disaster management and environment. (GCCA 2012f)

5.7.4 Timor-Leste

Because of the strong reliance of Timor people on subsistence agriculture, unpredicted climate events severely test coping mechanisms of rural communities. Another serious concern in the country is deforestation: forest cover has decreased by almost 30% (annual rate of 1.2%) between 1990 and 2010 as a consequence of overexploitation of valuable species, use of wood as a domestic fuel and destructive conversion for agricultural purposes.

The GCCA-Project in Timor-Leste aims at making farmers more responsive to environmental degradation and conscious of advantages of reforestation to enhance resilience and sustainable well-being of rural communities. Additionally, rural community environments are to be restored. Funded by €4 Million from GCCA FSF from Ireland, the project runs from December 2013 until December 2018. Project partners are the Ministry of Agriculture, Forestry and Fisheries, the Ministry of State Administration, the National Directorate for Disaster Risk Management, the Portuguese Institute for Development Support and the GIZ.

The improvement of livelihood options and adaptive capacity of vulnerable people and communities through sustainable management of their natural resources are the central purpose of this project. It will be achieved with local development mechanisms. So far, rural communities have been enabled to identify adapted responses to climate challenges which are integrated into socially inclusive village development plans in about 50% of vulnerable sub-districts. (GCCA 2012g)

5.7.5 Vanuatu

> *Urgent action is needed to avoid a genocidal impact on small island states. We cannot meet the challenges of climate change alone. The GCCA is necessary and will go a long way to assisting Vanuatu meet the challenges of climate change.* (Natapei 2009)

Vanuatu was the first GCCA country benefiting from EC funding of €3.2 Million. The NAPA of Vanuatu, a result of two years of climate change impact analysis with financial support from the UNFCCC, is to be facilitated with this money. Support is provided to the National Advisory Board (NAB) for Disaster Risk Management and Climate Change. It is implemented by the Director of the Department of Meteorology and Head of NAPA, Jotham Napatetail. (EU 2012, 28, 47)

The project consists of two components. Component A ran from April 2012 until January 2014 and received 93.6 Million Vatu (ca €720,000). Its main objectives were institutional strengthening, mainstreaming of climate change adaptation and disaster risk reduction into core aspects of Vanuatu's economy and resource management system, data collection and policy development. Component B develops resilience to climate change and natural hazards and is implemented by the World Bank through an Administrative Agreement with the EC. (NAB 2012)

Vulnerabilities identified in Vanuatu's NAPA were addressed during the last two years, such as identification and promotion of traditional and improved farming practices to conserve soil moisture and nutrients to reduce run-off and control soil erosion. Rainwater harvesting was developed and agriculture diversified to control flooding. Wetland was to be restored, coastal vegetation replanted and forest management improved to reduce flooding, coastal erosion and impact of storm surges. (GCCA 2012h) Furthermore, the development of an early warning and monitoring system is supported. Its aim is to build the ability of farmers to cope with critical situations and to map high risk areas as an input to evidence-based land use planning. (EU 2012, 30)

6 Empirical Results

This chapter contains the empirical results collected during the qualitative and quantitative questionnaires, presented according to the methodology introduced in the second chapter. The questions were assorted according to the research questions posed by this study. The major issues are (a) project impression and visibility, (b) motivation of the EU, (c) beneficiaries, (d) appropriateness, (e) social networks, (f) influence on regional actors, (g) effectiveness and efficiency, and (h) sustainability. Overviews of the results from questionnaire A are presented in tables 6.1 to 6.10. A complete overview of how the quantitative questionnaire was answered is available in Annex D. The answers for single questions from questionnaire B are presented in diagrams.

Not all questions were answered by all participants. They either specified to not know the answer or to not be qualified enough to give an answer, or just left the field empty. For establishing percentage numbers, these missing answers were simply left out. The number of respondents of a question will be given with every question and can also be reviewed in Annex D. Most people who declined to answer were lacking knowledge on the initiative or were lacking time. Most people declining came from Europe and most responses could be collected from people living in the Pacific region. In total, 28 people responded. Eight qualitative and 25 quantitative responses were collected, as five people answered both questionnaires.

6.1 Project Impression and Visibility

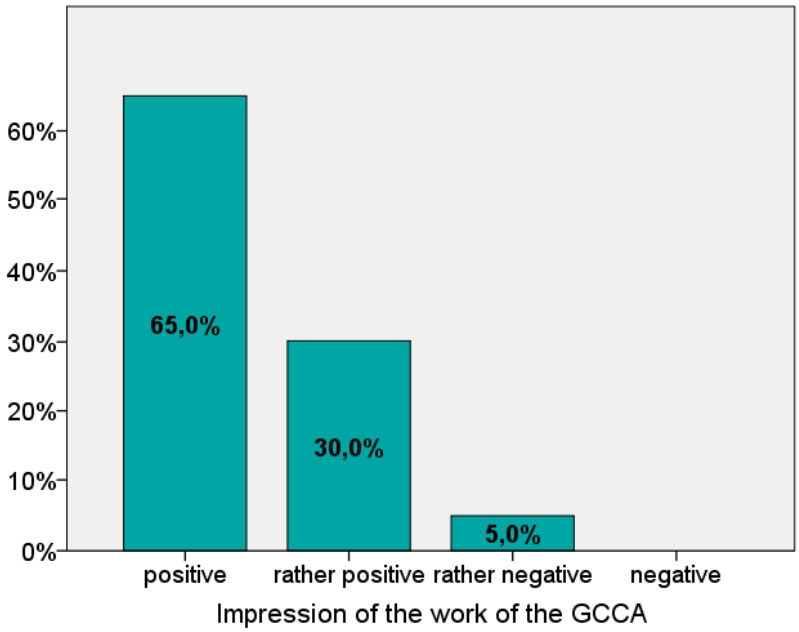
The questions which can be subsumed under this general aspect of project impression and visibility are QA3, QB1 and QB10. The question of QA3 was: “Which specific project/s do you know and what do you like or not like about them? (Do you know about progress and success of (one of) the projects?” Here, it could generally be observed that all participants answering the question know about the GCCA and its work and maintain a rather positive opinion about it. Characteristics labelled as positive were that the community is at the core of decision-making and that the communities most vulnerable are chosen to participate in the project. On the other hand, participants mentioned the lack of funding, the indifferent attitude of local people and the limitation to only one adaptation option.

Table 6.1 QA3 Summary of comments on project knowledge

Number	Answer	Quintessence
A2	- Knows PSIS-project: adaptation to climate change in the region, well informed about progress	Well informed
A3	- Knew of one which was a flop, water project on one of outer islands which was never completed - Another project is in process on sanitation, which failed in providing means and ways where the community could obtain toilets; real cause of toilet problems is attitude of people (buy TVs, phones etc. instead of saving little money they have for a toilet)	Good knowledge, indifferent attitude of people
A4	- I think we are doing well (GCCA-project), lack of funding is the worst part	Doing well, lack of funding
A6	- EU-GCCA project: I like it a lot. Progress and success have been good so far. Hopefully, the project will go on to a second phase.	Positive, hope of continuation
A7	- The GCCA project looks at water security as priority option for all three communities. I really appreciate the criterion and approach used because the community is at the core of decision making, meaning each community identifies its most important priority need with respect to CCA. - All local villages identified rainwater harvesting as their specific project for the GCCA. Piping a water supply would have been an option only if a water source was located close to the project sites. But for the case of the three villages/ communities identified under the EU-GCCA project, they are located on coralline islands. The only option left is through rainwater harvesting. - Positive opinion on what EU-GCCA project is doing because what is transpired at higher level in terms of decision making is seen and felt in rural communities; Project funding has been utilised for its intended purpose. People from one EU-GCCA project site are currently enjoying their drinking water from installation of water tanks for rain harvesting since then.	Water security priority, rainwater harvesting as only option, successful, community at core of decision making, good knowledge
A8	- I know the USP and SPC EU GCCA projects. I like the USP project as it has a community engagement where demonstration sites (communities) are chosen based on their vulnerability to CC (climate change). - These communities will formulate adaptation plans and implement part of these plans with GCCA funding. This is the catalyst for other parts of their plans to be implemented and funded by the communities themselves (with the assistance of other donors) as their capacity is build up to be able to sustain and maintain the activities that they formulated themselves.	Knows USP and SPC GCCA projects, USP actively engaging communities, communities chosen according to their vulnerability

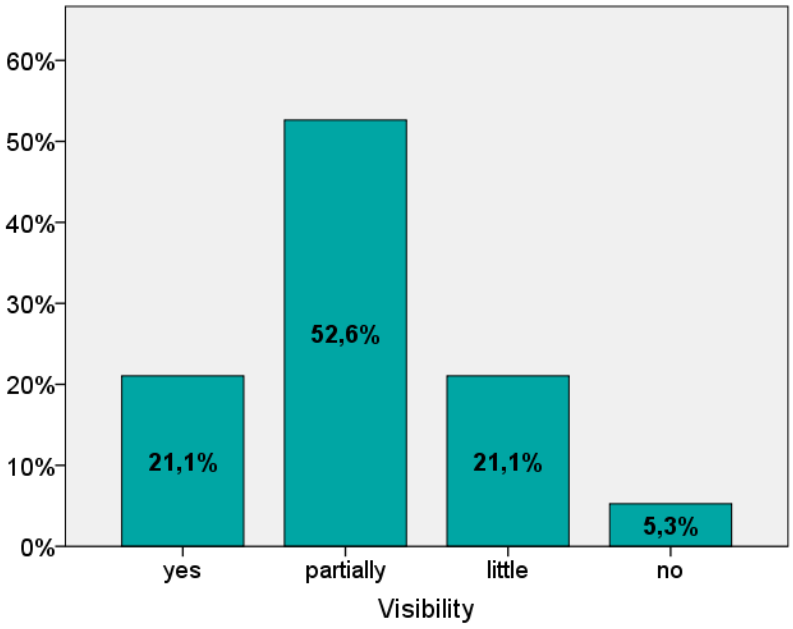
QB1 asked “Do you have a positive or negative impression of the work of the GCCA?” 20 of 25 participants answered this question. The positive opinion on the initiative is also noticeable here, with more than half of the respondents having a positive impression of the GCCA, and no one ticking ‘negative’. The exact percentages can be seen in figure 6.1a.

Figure 6.1a Bar chart of answers to QB1



QB10 posed the question of visibility, which was assorted to this sub-chapter, as visibility is the degree of exposure to public notice, and influences the opinion on the GCCA. A total of 19 participants responded to this question, which is visualised in figure 6.1b. The answers are rather ambivalent, even if there is a trend towards some visibility. Participant A5 in the qualitative questionnaire stated that people often express appreciation for the EU as the funder, but that the GCCA itself is not so relevant. This is partly due to the acronym not translating well into their languages, and partly because communities usually simplify project denotations to the area of adaptation it is pursuing, not the initiative.

Figure 6.1b Bar chart of answers to QB10



6.2 Motivation of the EU to Support the Pacific Region

The motivation of the EU has been addressed by questions QA1 and QB2. QA1 asked: “What is, to your opinion, the motivation for the EU to support climate change adaptation in the world generally, and specifically, in the Pacific Small Developing States? What do you think are the EU's main interests in the region?” The most frequent answer in the qualitative questionnaire was ‘the responsibility of the EU’, either because of the perceived responsibility for climate change or because of the recognition of vulnerability and lack of adaptive capacity of the Pacific Islands. Some participants perceive an obligation and pressure on the EU in the international sphere to support, or a feeling of guilt. Others point out moral reasons and the EU's willingness to support developing countries in coping with climate change. Additionally, two respondents pointed out historical and economic ties and political interest in the region.

Table 6.2a QA1 Summary of comments on motivation

Number	Answer	Quintessence
A1	- Responsibility towards less developed countries, as these do not possess sufficient financial and technical capacities and experience the impacts of climate change already	Responsibility, lack of adaptive capacity
A2	- SIDS very vulnerable to climate change, need special support - National structures and capacities are partially overburdened by climate change impacts	Vulnerability, Responsibility, lack of adaptive capacity
A3	- EU believed that cc is undermining development in the Pacific and stepped in to support in whatever way possible to address the problem; thus the EU is also helping to develop the islands	Responsibility, morale
A4	- Political support mainly and feeling guilty	Guilt
A6	- EU recognises that these Pacific Nations are the most vulnerable and at the forefront of climate change - Feels it has an obligation towards these nations due to centuries of pollution - It is not a blatant confession of guilt, it is more that it would like to do the right thing and show it is responsible and accountable and that is has a willingness to do something about the issue	Recognition of vulnerability, obligation, responsibility, willingness to respond
A7	- What motivates the EU to support CCA is gaining support from other countries politically, because if the EU does not act now these affected countries might be looking elsewhere, e.g. to communist countries or Arabic countries and that would create a threat for EU countries; also for recognition by world leading countries - Pacific SIDS need support because of vulnerability and lacking capacity, finance and technical resources. Need is there, PSIDS cannot cope with current climate change. - EU has political interest in the Pacific region. EU will lose face if it does not act now. - Current CC issues affecting Pacific are not of states' own making but rather due to European and other Westernised industrialised countries stepping up their industries to meet their global demand and increasing population for goods and services.	Political support, recognition, lack of capacity, political interest, loosing face, vulnerability, responsibility for climate change

A8	- The motivation of the EU stems from the pressure applied by international communities led by developing countries on the developed world to take full responsibilities for their action in causing rapid change in world climate. - Most of the developed world has pledged in international negotiations to contribute some funds to help countries that are vulnerable to impacts of CC. EU countries belong to the developed world, they have committed themselves to this task. They want to reduce the effects of CC in the countries that do not have the capacity to do this themselves. - The Pacific is a vast area with very small islands and communities that are at the forefront of the impacts of CC. Some of these islands were former colonies of the European countries. There are some historical ties as well as economic and humanitarian reasons for the EU intervention in the Pacific and other parts of the world.	Pressure, responsibility, guilt, morale, vulnerability and lack of capacity, historical and economic reasons, humanitarian reasons

Question QB2 was divided into five sub-questions, each asking for the importance of one particular possible motivation to support the Pacific region in climate change adaptation. Prestige was thought ‘important’ by 37.5%, ‘rather important’ by 50%, ‘rather unimportant’ by 8.3% and ‘unimportant’ by 4.2%. Resources were ticked by 33.3% as ‘important’, 29.2% ‘rather important’, 29.2% ‘rather unimportant’ and 8.3% ‘unimportant’. Influence received 36% for ‘important’, 48% ‘rather important’, 12% ‘rather unimportant’ and 4% for ‘unimportant’. Guilt, which missed the most answers, was ticked ‘important’ by nobody, ‘rather important’ by 28.6%, ‘rather unimportant’ by 42.9% and ‘unimportant’ by 28.6%. Finally, altruism was rated as ‘important’ by 4.2%, ‘rather important’ by 45.8%, ‘rather unimportant’ by 41.7% and ‘unimportant’ by 8.3%. This already implies that guilt was generally not important to most participants, while prestige, resources and influence belonged to the favoured answers. Altruism is in the middle.

Two empty rows were left for participants to write down their own suggestions. However, almost no one seized this option. Only four people brought in their own ideas, which were morals, responsibility and justice, human security, responding to country requests and winning domestic votes.

The table below illustrates the distribution of answers on the different motives, according to arithmetic mean, median and mode. Usually, the arithmetic mean is not applied in statistics. It is only used for comparison as it shows that on average, prestige and influence received the highest scores with 1.79 and 1.84, somewhere between ‘important’ and ‘rather important’, whereas guilt came off as ‘least important’ and resources and altruism in the middle. The comparison of the most ticked answers (mode) indicates that resources received the most ratings for ‘important’ and that guilt received the most votes for ‘rather unimportant’. Prestige, Influence and

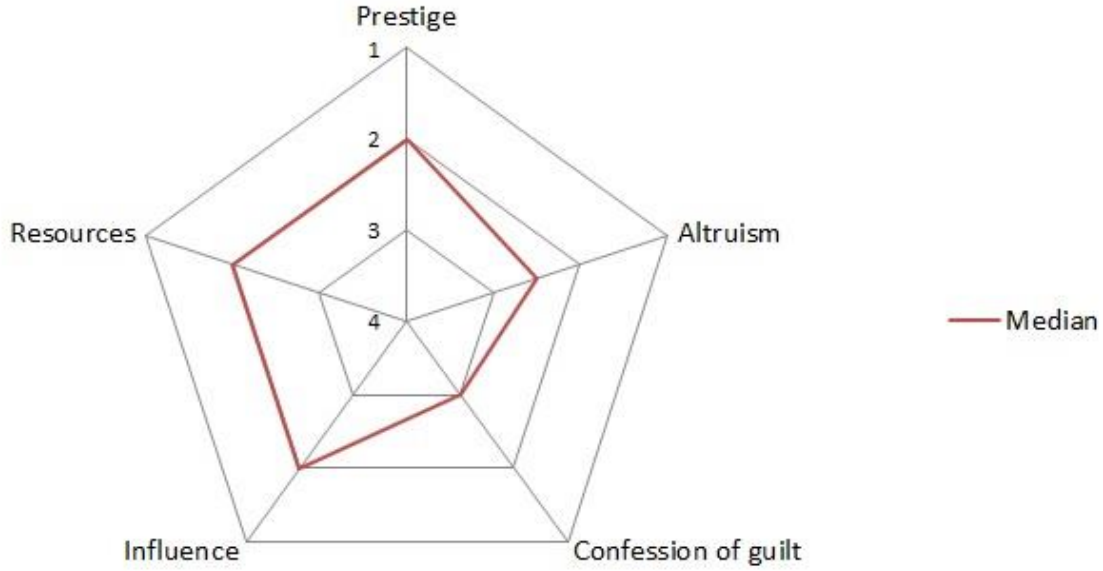
Altruism are generally perceived as ‘rather important’.

Table 6.2b Answers to QB2

Motivation of EU						
		Prestige	Resources	Influence	Guilt	Altruism
	Answered	24	24	25	21	24
	Missing	1	1	0	4	1
Arithmetic mean[102]		1.79	2.13	1.84	3	2.54
Median[103]		2	2	2	3	2.5
Mode[104]		2	1	2	3	2

The median is taken for a visualization of the answers, as it is closest to some kind of collective opinion. It resembles the middle value of a distribution, taking out upper and lower extremes. Thus, it can be seen that prestige, resources and influence with a median of 2 (‘rather important’) were among the reasons for motivation rated the most important overall, while confession of guilt with a median of 3 (‘rather unimportant’) is the least important of all reasons. Altruism with a median of 2.5 (between ‘rather important’ and ‘rather unimportant’) is also not considered a crucial factor.

Figure 6.2 QB2 Motives of the EU to Support



[102] The value obtained by dividing the sum of a set of quantities by the number of quantities in the set. Also called average.

[103] The middle value in a distribution, above and below which lie an equal number of values.

[104] The value or item occurring most frequently in a series of observations or statistical data.

6.3 Beneficiaries of the GCCA Support

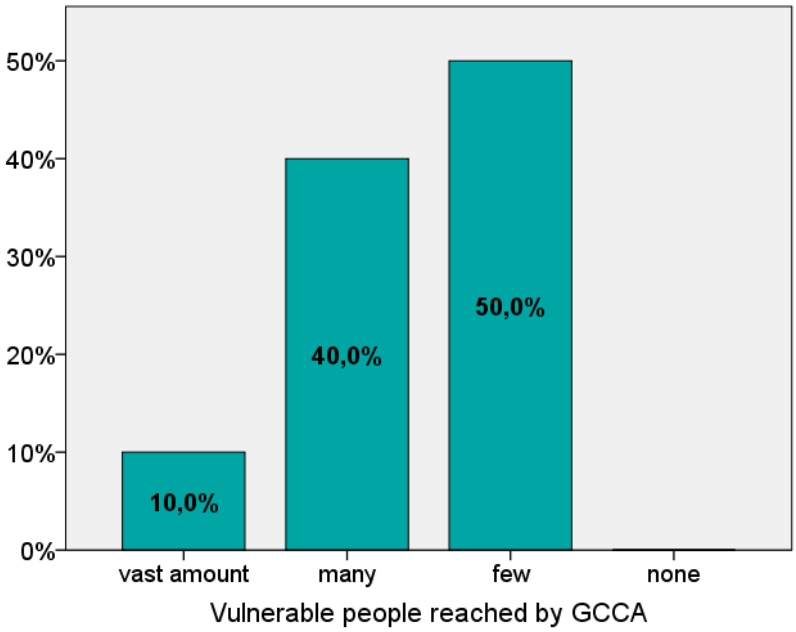
QA2 and QB3 can be subsumed under the issue of who benefits from GCCA support. QA2 enquired into “Who benefits how from GCCA adaptation?” and was answered similarly by all respondents. All agreed that the communities chosen as project sites are benefiting, i.e. that the local people are actually reached by GCCA support. Additionally, three participants named national structures/government/ministries as beneficiaries in terms of capacity building through formal and non-formal training.

Table 6.3 QA2 Summary of comments on benefit

Number	Answer	Quintessence
A2	- PSIS and SPC involved - EU supports 9 island states to adapt processes and communities to the impacts of cc; political and local level; profit for national structures and decision makers, members of certain communities - USP adaptation programme complements efforts of PSIS, interface of research, knowledge transfer and implementation	Profit for National structures and policy-makers, members of certain communities, cooperation with SPC and USP
A3	- Most EU projects community-based, meet needs of ordinary people at grassroots	Communities, ordinary people
A4	- Great amount of help from adaptation plans for communities; provision of infrastructure and water needed by people who are vulnerable	Great amount of support for communities
A6	- Local communities and the implementing agency, the government in this case (though not financially), but more in terms of capacity building and seeing how a community based project can be initiated and what the steps are	Local communities and government in terms of capacity building
A7	- Three local communities where implementation is currently undertaken are mostly beneficiaries, but also core ministries of the government through formal and non-formal training.	Communities and ministries through training
A8	- Mostly low-lying coastal communities who are badly affected by sea-level rise, which results in salt water intrusion contaminating their ground water lenses - Coastal erosion, storm surges, tropical cyclones and droughts are some of the effects that are being experienced by the islanders at a more frequent rate and greater intensity.	Mostly low-lying communities who are badly affected by ground water contamination and other cc impacts

The query of QB3 was more specified: “Does the support of the GCCA reach many vulnerable (in terms of climate change) people in the Pacific?” and asked for the amount of people reached through the initiative. The outcome tends towards ‘few people reached’ and is visualised in figure 6.3. In total, 20 people answered this question.

Figure 6.3 Bar chart of answers to QB3



6.4 Appropriateness of Adaptive Actions

The issue of appropriateness has been addressed by questions QA6 and QB4. QA6 interrogates: “Do you think that GCCA projects have so far been appropriate? (Where do you see the focus of the work of the GCCA? Does it address the needs of the people in the region to reduce their vulnerability to climate change?)” Respondents concurred that measures of the GCCA have been appropriate so far as local people were able to identify their needs themselves. However, three of them agreed that funding is limited and a lot more needs to be done.

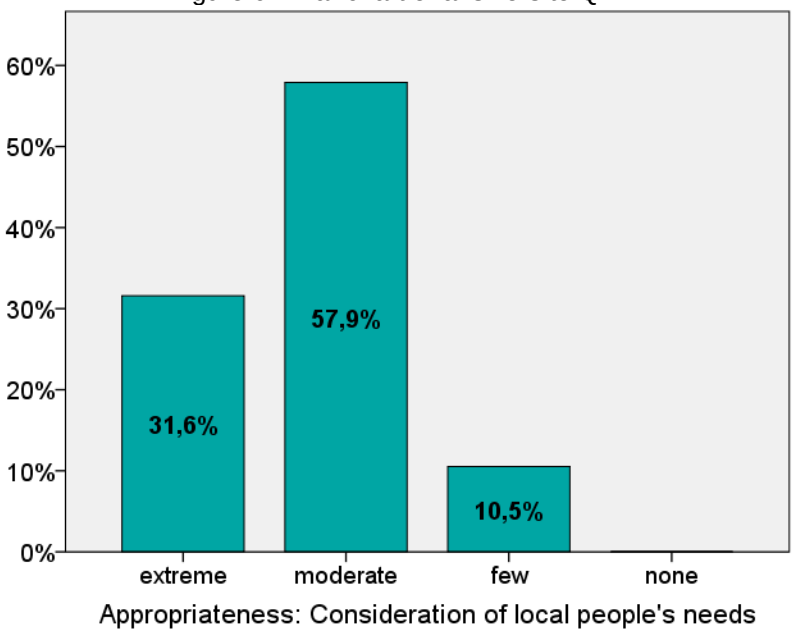
Table 6.4 QA6 Summary of comments on appropriateness

Number	Answer	Quintessence
A2	- Yes, they were appropriate and adjusted to the needs of the people; focus on mainstreaming of CCA and implementation on the ground, training and education	Appropriate
A3	- All GCCA projects are good and appropriate but if there is a problem, then implementers on the ground and management may cause problems - Current project interviewee commenced with a vulnerability assessment which leads to prioritising community needs, activities and programmes based on real needs of the community and not the donor - funds are limited and may not be sufficient	Vulnerability and adaptation has been documented, people are able to identify their needs and seek funding from elsewhere, limited funding
A4	- I believe projects are appropriate but they need to move further - They should fund infrastructure that contributes to village problems: e.g. bridges, dams - Governments should do this but they are doing a great amount of damage with nitty-gritty small soft measures.	Appropriate, but more needed; infrastructure important, not properly funded by governments
A5	- GCCA is channelled through governments or intergovernmental organisations: these generally use participatory approaches to channel the funds.	Appropriate, but channelled through governments or

	- Needs of people considered in adaptation approach.	intergovernmental organisations
A6	- Yes, appropriate and cost effective. It addresses the needs due to the community based approach of the project.	Appropriate through community approach
A7	- A lot more needs to be done in terms of addressing and reducing the vulnerability of PSIDS, because things are very expensive and the cost of living for many local islanders and small developing states is really high.	High costs of living, a lot more needs to be done
A8	- GCCA projects have been appropriate so far. The focus of the GCCA is on capacity building, research actions and community engagement. - GCCA is addressing the needs of the people in the region through the demonstration sites (more than 40 communities in 15 Pacific countries) - These communities have identified their vulnerable sectors and prioritise them into their adaptation plans of action. In doing so, they address their most pressing needs where most of the activities deal with water security, food security and coastal management.	Appropriate so far, supporting 40 communities in the Pacific which are enabled to address their most vulnerable sectors

Question QB4 wanted to know, “Do the projects of the GCCA act in accordance to the needs of the local people in matters of climate change issues?” 19 of 25 participants answered this question, with the following outcome illustrated in figure 6.4. The majority of answers implies moderate appropriateness, and generally a rather positive trend.

Figure 6.4 Bar chart of answers to QB4



6.5 GCCA-Influence on Social Networks

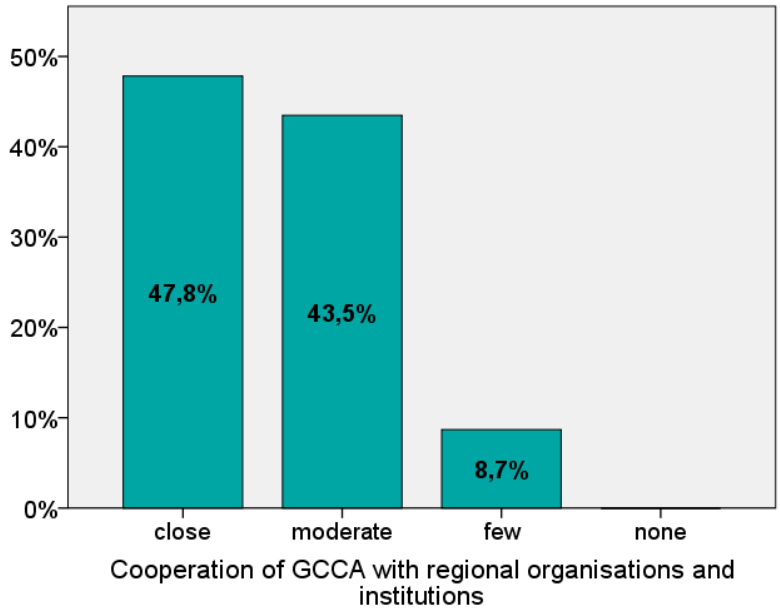
The issue of social networks is discussed in QA4, QB5 and QB6. In detail, QA4 enquired, “Which social networks are created nationally and regionally through GCCA support? With which organisations/ offices is the EU cooperating? Is new cooperation between actors in the region established?” Respondents named regional cooperation with USP, SPC, SPREP, UNDP and the United Nations Educational, Scientific and Cultural Organization (UNESCO). Participant A2 pointed out that no new networks are created, but rather existing ones strengthened. Nationally, cooperation takes place with climate change related ministries. Furthermore, a network is created though PACE-SD in the 15 Pacific countries engaged in the EU-GCCA project. This both regional and national network evolves through scholarship schemes and informal trainings and consists of scholars, experts, scientists and practitioners.

Table 6.5 QA4 Summary of comments on social networks

Number	Answer	Quintessence
A2	- Both GCCA programmes collaborate with offices responsible for climate issues in partner countries: regional USP, SPC, SPREP - No establishment of new networks, rather strengthening of existing ones in combination with programmes of other donors - Collaboration of GIZ with PSIS and USP is close and complementary	Collaboration with offices and other donors, regional cooperation, no new networks
A3	- National network created is the USP Grassroot Network, 15 NGOs working together on cc issues	USP Grassroot Network
A4	- Through GCCA, we have developed rapport with SPC, UNESCO and MNRE; SPREP and UNDP	SPC, UNESCO, MNRE, SPREP, UNDP
A6	- Regionally USP; Nationally with the Secretary of State for Environment and specifically with the National Directorate of International Environmental Affairs and Climate Change	Regionally USP, nationally with the relevant government office and secretary
A7	- On the regional level, USP and PACE-SD CCA network is currently utilised in 15 Pacific Island Countries who are engaged with EU-GCCA project - Locally managed climate change network between recipient communities of GCCA project is planned but not yet fulfilled.	USP PACE-SD regionally, locally only planned so far
A8	- A network of scholars, experts, scientists and practitioners both nationally and regionally is created by the GCCA through their scholarship schemes and informal trainings. - Demonstration sites also create a locally managed CC adaptation network amongst themselves and non-GCCA communities who wish to join and learn from the experiences of the GCCA-communities.	Scholarship schemes and informal trainings of GCCA create network of scholars and scientists regionally and nationally, sharing of community experience

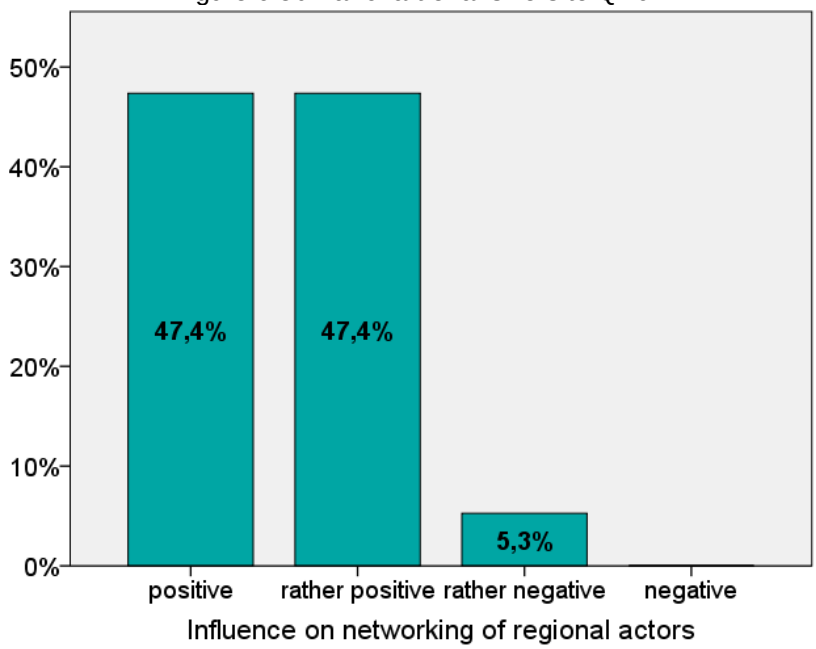
QB5 enquired, “Does the EU cooperate closely with regional organisations and institutions?” and was answered with a bias towards close to moderate cooperation of the EU with regional organisations and institutions. The distribution of answers can be seen in figure 6.5a. No one said that there is no cooperation at all. 23 of 25 participants answered this question.

Figure 6.5a Bar chart of answers to QB5



Another question assorted to this issue is QB6, which asked, “Does the GCCA support networking of regional actors in the Pacific or does it rather constrain them?” This question was answered by 19 participants and is visualised in figure 6.5b. Again, no one ticked that the influence is negative. Thus, the impression of respondents on GCCA influence on the networking of regional actors is predominantly positive.

Figure 6.5b Bar chart of answers to QB6



6.6 GCCA-Influence on Regional Actors

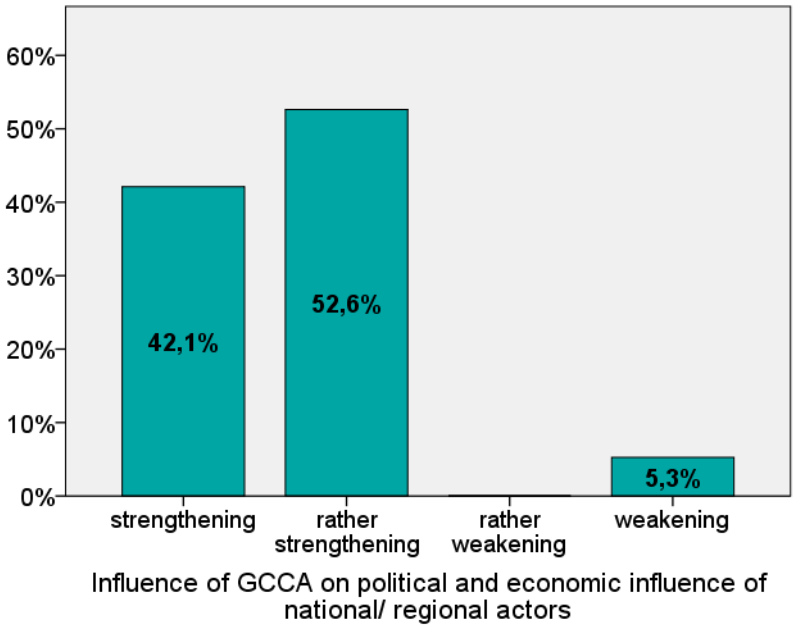
This issue interrogates about the influence of GCCA support on the political and economic influence of Pacific organisations and institutions. It is addressed by questions QA5 and QB7. QA5 asked, “Are national/ regional actors strengthened or weakened through GCCA support?” The respondents concurred that regional as well as national actors are strengthened through GCCA support. A7 pointed out that countries are strengthened in their fight against climate change through capacity building and knowledge sharing. In addition, A8 opines that regional and national actors are strengthened through formal and informal training and on the ground activities in communities. The education of new experts at USP and other regional organisations contributes to this.

Table 6.6 QA5 Summary of comments on regional actors

Number	Answer	Quintessence
A2	- Strengthened	Strengthened
A3	- Strong support but more could be done to build networks - USP, SPREP and SPC have worked collaboratively on projects, strengthened relationships in region - Has also worked with international NGOs like Live & Learn Environmental Education and OXFAM	More could be done, USP, SPREP and SPC cooperated, NGOs
A6	- I am under the impression that both national and regional actors are strengthened by GCCA support.	National and regional actors strengthened
A7	- Yes, at national and regional level GCCA support strengthened many countries in the fight to address climate change issues. The support through training of human resources, capacity building, dissemination of CC information and findings has done extremely well.	Nationally and regionally strengthened
A8	- National and regional actors are strengthened by GCCA support through both formal and informal trainings that are conducted both nationally and regionally. - They are also strengthened through on the ground activities that are taking place in the demonstration sites. New regional and national experts in the field are produced at USP and other regional organisations as a result of GCCA support.	Strengthened through formal and informal trainings and on the ground activities in communities, new experts educated at USP and other regional organisations

QB7 similarly enquired, “Does the work of the GCCA strengthen or weaken the political and economic influence of national/ regional actors?” and was answered by 19 participants. The general impression on this issue among participants seems to be that the EU rather strengthens national and regional actors, which concurs with the qualitative question. The distribution of answers is presented in figure 6.6.

Figure 6.6 Bar chart of answers to QB7



6.7 Effectiveness and Efficiency of GCCA Support

The issue of effectiveness is addressed in QA7 and QB8. QA8, which asked for the efficiency of the GCCA, is also assorted into this sub-chapter. QA7 queries, “How effective have the adaptive measures of the GCCA been so far? (How well did it meet its objectives? Do states become more resilient and gain adaptive capacity?)” The answer received by most participants was that the effectiveness of the projects is not yet measurable since the projects have to be implemented completely. Respondent A2 depicted that for long term processes, an increase of resilience cannot be measured after two years of project duration. Additionally, the efforts of the GCCA cannot be seen alone, but always in cooperation with the efforts of other donors. A3 maintained that the initiative is effective as important objectives are met, but more funding is needed and the attitude of the people has to change. The aspiration for additional funding was also expressed by A6. A7 mentioned that the GCCA project addresses only one sector in the respective demonstration site, while all other sectors of a community are vulnerable to climate change impacts, too. A5 said that vulnerability has increased despite all efforts and that only time can be bought with temporary fixes.

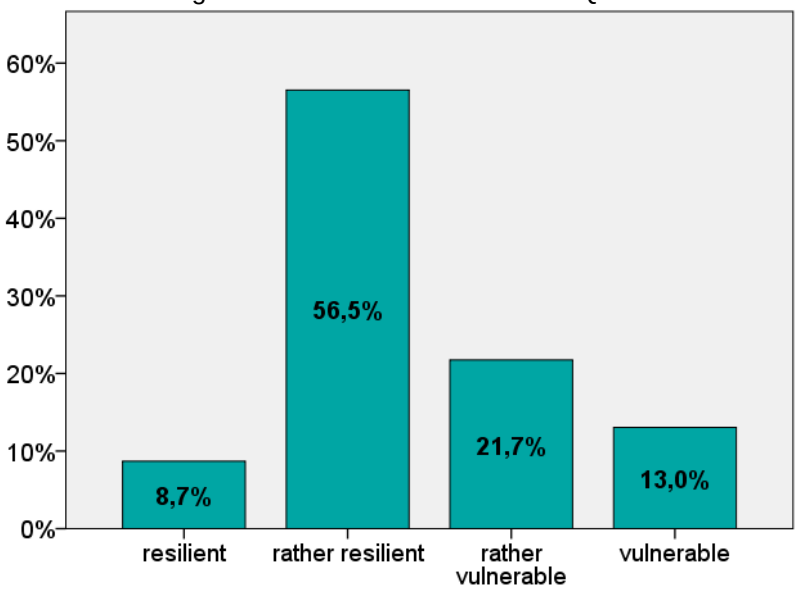
Table 6.7a QA7 Summary of comments on effectiveness

Number	Answer	Quintessence
A2	- Long term processes: hardly possible to measure an increase of resilience after two years of project duration - GCCA in cooperation with efforts of other donors	Not yet measurable
A3	- Yes, is effective: project measures are high and it meets its objectives, but more programmes should be conducted in communities and schools that are very basic and can change attitude - True measure of our project is when people are able to change their attitude to be self-sufficient and resilient; Attitude change happening, more needs to be done - Introduced nutrition in one project, community enterprise development and literacy as part of a cc awareness programme; tools and skills should open a pathway to move higher in their thinking, which is adaptive capacity (not the science of cc but rather skills learnt that people can use to counter impact of cc that will build resilience) - Traditional skills should be maintained or restored as many young have lost it	Yes, but more programmes needed, change of attitude among people necessary, tools and skills will create adaptive capacity, traditional skills are important
A4	- Not really clear at this point in time although it is another level up, e.g. providing drinking water and water tanks	Not yet measurable, but progress
A5	- GCCA reaches few vulnerable people at the moment, but this will likely increase to many once the programmes are fully implemented. However, several country activities have yet to commence so the actual reach thus far is few. - Scale and pace of impacts is increasing, depending on the sector. Ten years ago ocean acidification was rarely mentioned, now people know it is a major threat to marine ecosystems, but still there are almost no solutions. The wind and cyclone pattern changes projected towards latter part of this century seem to happen sooner. Politicians tend to put off what they can, unfortunately that is becoming less of an option. - Learning by doing adaptation – finding it harder to deal with things as coastal erosion, as no protection against it. Only time can be bought with temporary fixes. Vulnerability has increased.	Few vulnerable people reached so far, full implementation necessary; vulnerability has increased
A6	- We haven't started adaptive measures yet, so we need to see. However, additional funds can maximise effectiveness and impact.	Not yet measurable
A7	- GCCA project addresses only one sector. Almost all the other sectors of community are vulnerable to CC issues. Therefore, to measure effectiveness of adaptive measures, monitoring and evaluation of communities is necessary. Only then conclusions can be drawn on how projects benefit communities. - At the moment, we are in implementation phase. Afterwards we will see how it benefits the community and measure it against objectives. A few water tanks were installed in one project site to date. The rest will be installed in the coming months.	Only one sector addressed, monitoring and evaluation after implementation necessary, not yet measurable, few water tanks installed in one site
A8	- The adaptive measures are still to be realised in our communities as we are still working towards the implementation stage. Very soon, we will witness the implementation of the measures and how effective they are.	Not yet measurable, implementation stage will start soon

QB8 asked, “Do you have the impression that Pacific States become more resilient and gain adaptive capacity or become more vulnerable?” 23 participants responded to this question, which is displayed in figure 6.7. The distribution of answers to this

question is rather ambivalent, with the majority of answers received for ‘rather resilient’.

Figure 6.7 Bar chart of answers to QB8



Question QA8 addressed: “Have they (adaptation measures) been efficient? (How well inputs such as funds and time were converted into outputs? Does the money actually reach communities?)” Participant A2 responds that they have been partially efficient, as absorption and implementation capacity in PICs is limited. A3 complains that funding is available, but that the problem lies with implementers and management, as there is a problem of keeping documents. A4 opines that project impact is minimal, while A6 says that the project has been especially cost-effective in utilising small inputs to achieve large outputs and in inspiring a ripple effect.

Table 6.7b QA8 Summary of comments on efficiency

Number	Answer	Quintessence
A2	- Partly, in many cases efficient - Limited absorption and implementation capacity on PSIS, therefore strong collaboration with regional organisations - Money partially reaches communities, partially national structures are strengthened	Partially efficient, reaches communities and national structures
A3	- Funds are always available but implementers and management are the problem - Major factor: when issuing money in outer islands or remote places, there will always be problems of keeping documents - EU should understand that signatures or written documents are produced instead of receipts, to make work easier	Funds available but problem with implementers and management, document keeping problematic
A4	- Yes because of soft measures and no because the impact is minimal	Impact is minimal
A6	- I think unlike other projects in the country, the project has been especially cost-effective: using small inputs to achieve large objectives and inspiring a ripple effect.	Especially cost effective

A7	- This question might go with question 7 and question 3. - QA3: successful as community at core of decision-making - QA7: only one sector addressed, not yet measurable	Not yet measurable
A8	- I am still organising the activities to be implemented in the communities. Their plans are ready and the budgets have been approved. Only a few things need to be confirmed before the actual implementation of the activities begins.	Plans are ready and the budgets have been approved

6.8 Sustainability

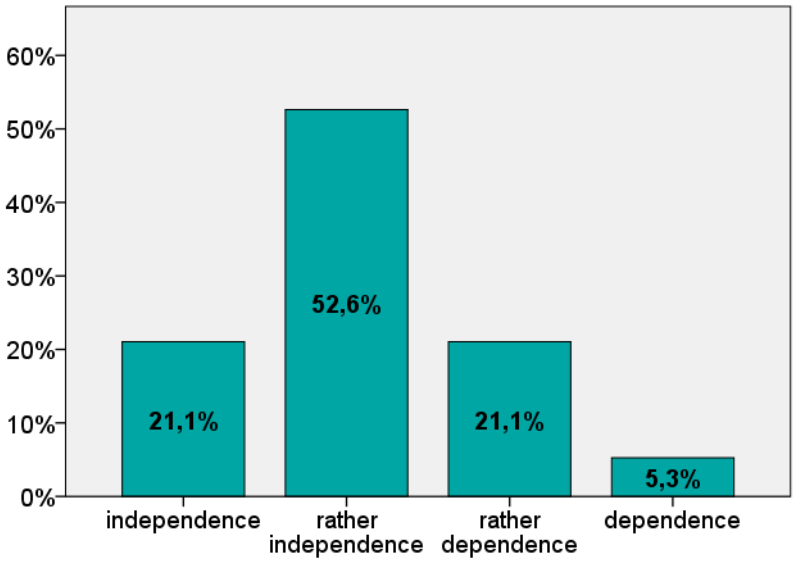
Sustainability is addressed by questions QA9 and QB9. The question of QB9 was, "Sustainability: Are the projects of a long-term or short-term nature? (Do you think they will persist after the end of the project period and be continued by local people? Is it help to help themselves?)" On the one hand, respondents said that the GCCA provides help to the communities to help themselves. They noted that sustainability strongly depends on whether a project is community-owned, but also said that more funding is necessary. Projects are both of long and short term nature, depending on the kind of adaptation. On the other hand, A4 and A5 see that more needs to be done concerning the training of local people and overcoming short term adaptation approaches, such as the provision of water tanks. A5 is of the opinion that dependence currently is predominant.

Table 6.8 QA9 Summary of comments on sustainability

Number	Answer	Quintessence
A2	- Yes, it is help to help themselves. There is hope for sustainability of projects and that adaptation approaches will be continued in some countries.	Help to help themselves, hope for sustainability
A3	- Sustainability depends on the implementer of projects, communication with communities is important - Agreements made, awareness process and spirit of commitment lies in the approach to the community - If a project is community-owned, it will be sustainable	Inclusion of community important, sustainable if community-owned
A4	- GCCA should mobilise other funding agencies to continue. Our problem now is to train our sites to familiarise with local donors in order to apply for continuity once the project finishes.	Other funding agencies should be mobilised to continue, local people have to be trained
A5	- Dependence is often predominant and it is difficult to overcome what is sometimes a quick fix approach, such as buying a bunch of water tanks, or try some climate resilient crops in new places, with a more measured and sustainable approach.	Dependence predominant, quick fix approach needs to be overcome
A6	- They will be long-term once the second phase of the project has been secured. - Besides that, there is a strong emphasis on self-reliance after the project ends.	Long-term once second phase secured, strong emphasis on self-reliance after end of project

A7	- The project is short term, but the purchased water tanks last around 20 years before they need to be replaced. Only if the community takes great care for this materials and infrastructures the above mentioned years would be meaningful. - Communities that took part in the GCCA project have already shown ownership for it. As the community perceives itself as part of the project, their ideas were considered. Only then people will maintain project facilities and make it sustainable. Feeling ownership by a community is the most important thing seen in the three project sites so far. - This is why I mentioned in QA3 that when community is the core of decision making, sustainability will prevail because people's ideas and inputs were included.	Short term, but water tank lasts 20 years if community takes care, ownership and inclusion of people's ideas needed
A8	- The projects are designed both short and long term. - The plan for the community is to take ownership of their action plans and implement them on a long term basis.	Long and short term, communities intended to take ownership

Figure 6.8 Bar chart of answers to QB9



QB9 enquired, “Does the work of the GCCA facilitate independence or does it create dependence?” This also touches the issue of sustainability, as a project is sustainable when a community is able to independently continue an adaptive action after a project was finalised. The question was answered by 19 of 25 participants and is illustrated in figure 6.8 above. It shows a positive trend towards the GCCA rather creating independence, which is similar to the answers from QA9.

6.9 General Remarks

In the qualitative questionnaire QA, the offer for remarks was not utilised, possibly because the questionnaire itself offered a lot of liberty in how to answer a question. Remarks were often stated with the respective question.

However, this was the opposite for the quantitative questionnaire QB. To begin

with, four participants who did not answer some of the questions stated their reason for not doing so was that either the GCCA or detail on its work was unknown. They did only answer general questions on the motivation of the EU and vulnerability in the Pacific. One respondent added to QB8 on whether Pacific Islands become more resilient or vulnerable that there is no change. Another stated that QB4 on appropriateness was difficult to answer as it depends on indicators used to assess needs and that to respond to QB8, quantitative analysis needs to be done looking at different vulnerability indicators. This question was also commented on by a further participant, who stated that many factors leading to resilience in Pacific countries might be independent of GCCA development interventions, but dependent for instance on other donors and climatic events.

Many were positively commenting on the GCCA, calling it a catalyst of change to the vulnerable people of the region, as it recognises and acknowledges peoples traditional knowledge together with current scientific research results. Moreover, the USP project was stated to be a great case study in each of the island countries devoid of political influence to help local people to help themselves. In particular, the ability of Pacific people to manage and deliver adaptation financing to benefit people at community level was trained. Additionally, it was commented on that EU-GCCA projects are community based but also collaborating with local institutions such as relevant government agencies and NGOs.

Negative comments mentioned that the project is only conducted in three of hundreds of local communities, i.e. villages, of each Pacific country. The GCCA thus has yet to reach many more vulnerable communities. Another participant explained that the GCCA works only in four Pacific Island countries and might not receive the publicity and support it needs compared to other regional projects.

One respondent gave the advice that regardless of the costs involved, the EU and the GCCA should locate their climate change adaptation projects in the remotest regions of a country as this is where the people live which have the least resources and knowledge to cope with climate change, and are thus the most exposed and susceptible.

The next chapter will discuss the empirical results presented, involving further literature research to support and compare questionnaire findings.

7 Discussion

7.1 Project Impression and Visibility

As both questionnaires showed, almost all participants know the GCCA and maintain a rather positive opinion on its work. Participants highlight that the most vulnerable communities are chosen to participate in climate change projects and that the communities are actively involved in decision making. Nevertheless, local people seem to hold an indifferent attitude towards climate change adaptation. It was evident from the reports and documents of the GCCA and USP PACE-SD that they try to engage the communities as they should play an important part in climate change adaptation.

In the Regional project *Support the EU-GCCA through capacity building, community engagement and applied research*, the second component is devoted to community engagement. This implies among other things that the respective In-Country Coordinator conducts vulnerability and adaptation assessments in the three most vulnerable communities of each country. Members of the communities are thus enabled to voice their concerns and influence adaptation projects to the actual needs of the community. (PACE-SD 2012)

The Climate Funds Update (CFU) is an independent website providing information on international climate finance initiatives helping developing countries to address climate change challenges. They have the GCCA in their repertoire, which has, according to their data, substantially increased the amount of finance available. In general, they observed a considerable increase in adaptation finance from dedicated climate financing instruments in 2011. (Watson et al. 2012)

The data suggest that the most disbursed funding for adaptation projects currently originates from the GCCA, the Least Developed Countries Fund and the Special Climate Change Fund. The GCCA has significantly increased its approved funding for adaptation by $100 Million in 2011, and is now the largest global funder for adaptation. Until November 2012, it pledged[105] $385.36 Million, deposited[106] $365.36 Million, approved[107] $296.81 Million and disbursed[108] $130.99 Million in 29 projects worldwide. (Watson et al. 2012)

However, it is generally recognised that there is a lack of funding by

[105] A verbal or signed commitment from donors to provide financial support to a particular fund.
[106] Funds that have been transferred from the donor into the account(s) of the fund.
[107] Funds that have been officially approved and earmarked to a specific project or country programme.
[108] Funds that have been spent either through administrative means or directly to an implementation programme or project, with proof of spend.

respondents to the conducted questionnaire. Billions of dollars will be needed in the coming years, to cope with the potential future challenges facing the Pacific Islands. (Yamamoto and Esteban 2014, 81) Also, the CFU claims that major challenges persist in generating sufficient funding for adaptation and directing it to the most vulnerable states, people and population groups. Of the $2.73 Billion pledged so far, only $1.22 Billion have been approved to support projects and programmes. A major part of this finance goes to sub-Saharan Africa and Asia and the Pacific. Asia and the Pacific receive about 27% of total finance. (Watson et al. 2012) They also noted, that in the wider Asia-Pacific Region, China and India receive and spend the largest amount of climate finance, whereas the highly vulnerable Pacific Islands receive comparatively modest amounts.

Twenty-one dedicated climate funds and initiatives operate in the region. This includes fifteen multilateral funds, five bilateral initiatives and one national fund. Since 2003, $2.27 Billion have been approved, and the Pacific Small Island States only received 2% of this total amount. Approximately half of the approved adaptation funding stems from the Pilot Programme for Climate Resilience and the Least Developed Countries Fund. The GCCA, has so far approved $71.17 Million, disbursed $50.63 Million and authorised ten projects in Asia and the Pacific. (Schalatek et al. 2013)

There is a lack of transparency and reporting, which makes it difficult to properly assess the amounts vulnerable countries actually receive. Most climate finance is spent bilaterally, and managed by development agencies. Since countries are self-classifying and self-reporting climate-relevant financial flows, there does not exist a common reporting format or independent verification. Also, for the GCCA, information is disaggregated or only partially provided, but in most cases up to date. Transparency is crucial to understand who benefits from public climate financing and how scarce resources are being used. (Nakhooda, Watson, and Schalatek 2013)

Concerning the question of visibility, answers from questionnaire B were rather ambivalent, with a tendency towards some visibility. One participant stated that the EU is known as the funder in many cases, while the GCCA often remains unknown. The annual progress report from 2013 of the USP-implemented GCCA project states that press releases, email campaigns, special presentations, social media updates, advertising, a website and meetings are provided to ensure visibility. (Samani 2013b, 15) However, the EU itself criticises the lack of visibility, on the one hand of the EU in the Pacific, and on the other hand of the Pacific in Europe. It maintains that there is a

lack of reflection of the EU being the second-largest donor in the region, and a lack of understanding about the region and its needs among Europeans. (EC 2006, 25–26)

7.2 Motivation of the EU to Support the Pacific Region

Motivations identified by QA participants focussed on responsibility either because the industrialised states of the EU and other developed states are largely held responsible for human-induced greenhouse gas emissions which cause climate change; or responsibility in terms of the wealthy developed states of the EU who have the means to support vulnerable nations with a lack of adaptive capacity. This implies the recognition of the vulnerability and low adaptive capacity of the Pacific Islands. Various scholars opine that the ability of small islands to undertake adaptation programs and their effectiveness can be strengthened through appropriate assistance of the international community. (Nurse et al. 2014, 3)

Other motivations named and related to responsibility are an obligation and pressure to do so, and a feeling of guilt for climate change. Some simply identified moral reasons and a willingness to support developing countries of the EU. One participant states that historical and economic ties are essential. In contrast, the respondents from QB identified prestige[109], resources[110] and influence[111] as the most important motives of the EU.

According to Pavlos Evangelidis, the Attaché for Infrastructure and Natural Resources of the Delegation of the EU to the Pacific,

> *[W]e provide development cooperation around the world for many reasons, the most important of which would be to combat poverty, create economic opportunities and a transparent eco-political system to the extent that we can.* (Evangelidis 2013)

As climate change is likely to become more intense, development and sustainable growth will be more difficult. The millennium development goals are seen as the standard of international development cooperation and poverty eradication. They are interlinked with climate change in two ways: firstly, advances in reaching the MDGs contribute to minimizing the vulnerability of impacts from climate change; and secondly, the scope of climatic changes will co-decide whether the MDGs can be reached before 2015 and what the development perspective of many people will be afterwards. (Harmeling and Bals 2007, 4) According to IPCC data, SIDS and LDCs

[109] A certain level of respect for conducting development assistance and climate change adaptation.
[110] Through the support, the EU gains better access to resources from the Pacific, e.g. fish and minerals.
[111] As the EU is present and active in the region, it can exercise some influence and extend its power.

will be hit hardest and earliest by climate change. As they possess only scant resources to prepare or adapt, the support of the international community is required. (EU 2011b, 5) To serve justice[112], industrialised countries should support developing countries in adapting to climate change in addition to providing development assistance. (Harmeling and Bals 2007, 55)

The EU has become an important provider of international development assistance and climate change adaptation. As also outlined by questionnaire respondents, it recognises that the LDCs and SIDS require assistance and thus established the GCCA between poor developing countries most vulnerable to climate change and the EU. A green paper[113] containing a pillar on integrating adaptation into external action was established and climate change is now systematically integrated into development strategies and investments. The EU realises that if it does not act on climate change now, it will be more costly to the global economy in the long term. (EC 2007, 2–8)

There are no legal or contractual obligations to supply such assistance, but many donors make public commitments to increase their aid budgets. (Smith and Hemstock 2011, 4) Financial aid for adaptation increased significantly since the failed UNFCCC negotiations in Copenhagen in 2009. Many rich states are eager to show that they are committed to help, even if they have been unwilling to reduce their own GHG emissions. (Weir and Orcherton 2013, 58) It is also common, that organisations committed to development cooperation enjoy societal appreciation and moral integrity, which emphasises prestige as a motive. (Harmeling and Bals 2007, 59) Therefore, the EU's efforts for a more coherent external policy symbolise its ambitions to become an influential global actor.

Another motive for EU engagement in the Pacific also rated highly in QB are the substantial natural resources the region holds. These are, among others, fish, timber, agricultural produce, oil, gas and minerals. Rising demand by China, India, ASEAN and others requires sustainable management. The environmental challenges in the region have global implications, as for instance the future of the world's fisheries could depend on them (the world’s only fishery not yet heavily over-fished is in this region). The Pacific Ocean becomes a global good, which needs to be protected, as well as its immense unique biodiversity. It bears high potential for

[112] Annex 1 countries are said to have a historical climate debt resulting from GHG emissions over the course of their own development. (Ewing 2013)

[113] Document published by EC to stimulate discussion on given topics at European level.

human health in terms of biotechnology: bioengineered medication and treatments are developed from living organisms in the Pacific Ocean. A special trade agreement binds the two regions under the Cotonou Agreement, which entitles the Pacific ACP states to some trade advantages. Concerning the size of the Pacific states and their distance to Europe, the 10% of total exports going to the EU are remarkable. However, only specific products are relevant and traded. (EC 2006, 2–7)

Additionally, the EU has an interest in the stability and security of the region, since fragile states can pose a severe challenge for the international community. Climate change acts as a threat multiplier; an ecological breakdown leads to poverty, tension and conflict and thus, implies lost development opportunities. The social situation is bad, economies of Pacific ACP states are hardly growing, whereas population is rapidly increasing and HIV-AIDS among other health risks is becoming more frequent. (EC 2006, 2–4)

The geopolitical importance of the region is growing, and many influential global players like the United States, Japan, China, Australia and New Zealand have security, political and trade interests in the wider Pacific region. An increasing engagement of China takes a new dynamic to the region, influencing developments. The EU sees a possibility in enhancing its bilateral relations with these states through a more active role in the Pacific. Furthermore, it hopes that through a strengthened partnership and political dialogue, joint multilateral actions can be enhanced. Clearly, the EU wants to secure votes in the United Nations primarily where the 13 Pacific ACP members often act as a group. The two regions share many interests on improved global governance, for instance on climate change. (EC 2006, 4–5)

The international importance of the Pacific is underpinned by a joint US-EU statement on the Asia Pacific region from 2012. Both intend to coordinate efforts to address climate change to eradicate poverty in the region. Ensuring access to energy, while enhancing efforts to reduce emissions are high on the agenda. They 'welcome' an active and constructive role for China in the region. (Federal Information & News Dispatch, Inc. 2012)

Since the end of colonialism, the role of the EU in the Pacific has been minor. Additionally, the region is geographically far away and culturally different. However, the EU and the Pacific SIDS share values such as democracy, human rights, rule of law, effective multilateralism and environmental protection. They joined forces in Durban to reach an agreement on climate change and also in Rio, where the EU supported the SIDS. (PIFS 2012) According to a diplomatic cable released by

WikiLeaks in 2010, EU Climate Action Commissioner Connie Hedegaard told US Deputy Special Envoy for Climate Change Jonathan Pershin that „the AOSIS countries could be our best allies given their need for financing.“ (Maclellan 2011, 4)

7.3 Beneficiaries of the GCCA Support

As stated by QA participants, local people in the Pacific are reached as the projects aim to support communities and act according to their needs. This is also evident from documents and reports provided by the GCCA and implementing organisations and institutions, such as the USP PACE-SD and the SPC. Rajesh Chandra, Vice-Chancellor and President of USP, stated that “[...] adaptation measures developed and implemented in communities will directly benefit those most vulnerable, whose livelihoods are at greatest risk.” (EU Delegation Fiji 2011)

Through the regional project *Support the EU-GCCA through capacity building, community engagement and applied research*, the USP expects a network of national and regional experts on climate change to evolve, who can support communities, governments, NGOs and regional organisations. (USP 2004a) Some QA participants also noted that national structures, governments and ministries are benefiting in terms of capacity building through formal and non-formal training. Additionally, this project aims at educating local people in climate change, its impacts and adaptation methods. Currently, 40 communities across the Pacific were enabled to compose vulnerability and adaptation assessments to identify their most pressing needs. These assessments can in turn be used to apply for other sources of funding.

Under the regional project *Pacific Small Island States,* nine island states receive on-the-ground adaptation support. It aims at helping countries overcome an ad hoc project-by-project approach and instead implement a long term approach. (SPC 2011b) The national projects often aim at building the capacity of climate change related institutions and mainstreaming of climate change. Community engagement programmes are taking place and livelihood options are improved. (GCCA 2012c)

Nevertheless, the outcome of QB shows that participants are of the opinion that few vulnerable people are benefiting from GCCA support. The reason for this probably is that funding is generally limited and that the GCCA reaches only few vulnerable people as only a few demonstration sites are selected in each country.

7.4 Appropriateness of Adaptive Actions

Respondents from QA pointed out that adaptive measures of the GCCA have so far been appropriate, as local people were able to identify their needs themselves, concerning the regional project implemented by USP. Outcomes from QB showed moderate appropriateness.

As the GCCA claims that it is acting according to countries' NAPAs and National Communications (USP 2004b), the following table presents priorities identified by NAPAs[114] and National Communications to the UN of Pacific states. They are compared to actual project activities conducted by the GCCA. Underlined priorities are met in some way by the GCCA or expressed in GCCA objectives for the Pacific region or the respective country.

Table 7.4 Identified priorities versus adaptive actions, underlined priorities are met in some way

Country	Identified Priorities	Adaptive Actions of GCCA
Cook Islands	Building adaptive capacity, comprehensive climate and risk information through researchers and assessment, institutional strengthening of national bodies to oversee climate change issues, greater integration of climate change in planning and implementation, financing of climate activities and budget constraints (National Environment Service 2011, 13)	Environmental monitoring to enhance community lives and build resilience, improve environment for peal farming and artisanal and small scale commercial fisheries (SPC 2011b) water security, provision of water tanks, coastal protection (Samani 2013b, 17, 18)
Fiji	Mangrove and reef protection, controls on pollution, flood control, drought-alleviation, institutional development, watershed management plan, sustainable forest management, vulnerability and adaptation assessment, public awareness raising and education and systematic observations and research (PICCAP and Fiji Country Team 2005, 8–14)	Gravity fed water supply system, water tanks, establishment of water committees and rules (Samani 2013b, 19)
FSM	Comprehensive environmental management response strategy, coral reef ecosystems, coastal zones, waste management, forest ecosystems, agriculture, water supply, public awareness, research, technology development and transfer, interagency strengthening (FSM National Government 1997, 3)	Vulnerability and adaptation assessments still in progress end 2013 (Samani 2013b, 20)
Kiribati	Mainstreaming CCA and DRR, climate change policy framework, groundwater monitoring, rainwater harvesting, water supply, seawall, ecosystem monitoring, mangrove replanting, reef monitoring, community participation, information accessibility, adaptation awareness (Kiribati Government 2013, 24, 171, 172)	Health workshop, improve implementation of Environmental Health Surveillance and response to climate sensitive health risks (SPC 2011b) rainwater harvesting, brackish water reticulation, trainings on nutrition, literacy (Samani 2013b, 21)
RMI	Institutional strengthening, management and operational training, applied research assistance,	Vulnerability and adaptation assessments still to take place end

[114] However, it has been noted by the IPCC that NAPAs have the same constraints and problems of exclusion and narrow focus as other national planning processes. (Adger, Agrawala, and Mirza 2007, 732)

	professional and technical support, appropriate funding, information management system, confidence and capacity building, awareness and education, international participation, responding to shoreline changes: retreat, shoreline protection, resettlement (Namindrik 2000, 7, 8, 52)	2013 (Samani 2013b, 22)
Nauru	Sustainable development, integral coastal zone management plan, water-resource management plan, education, training, institutional strengthening, monitoring of important baselines, evaluation of rehabilitation master land-use plan, national environmental action plan (Republic of Nauru 1999, 10–13)	Provision of water tanks for rainwater harvesting, advance potable water supply to households (SPC 2011b) brackish water reticulation system (Samani 2013b, 25)
Niue	Relocation of vulnerable infrastructure, increased research of marine/terrestrial flora and fauna with respect to cc, establishment of database and information systems for accurate monitoring and data collection, technical training (Niue Climate Change Project 2000, 13)	Provision of water tanks for rainwater harvesting (SPC 2011b) sustainable development plan, relocation, rainwater harvesting, planting of fruit and vegetables, solar lights and radios for cyclone season (Samani 2013b, 23)
Palau	Capacity building, research and monitoring, national awareness, national development planning (Republic of Palau 2002, 93)	Assessment of water resources and climate related risks, reduction of leakages, installation of appropriate water harvesting (SPC 2011b) vulnerability and adaptation assessments still to complete end 2013 (Samani 2013b, 24)
PNG	Integrated coastal management, community based monitoring and management, integrated research, capacity building, stock enhancement of inland fisheries, new water technologies, control vector-borne diseases, improve medical services, public awareness programmes, water carting (PNG 2000, 51–56)	Water tanks, water committee, sea walls (Samani 2013b, 35, 36) national forest monitoring system, forest governance, technical support and training, forest studies (GCCA 2012d)
Samoa	Water resources, reforestation, education and awareness, agriculture and food security sustainability, seawalls, essential infrastructure, village development inspections, capacity building, waste management, climate early warning system, conservation programmes, sustainable tourism, climate health cooperation programme, zoning and strategic management planning, coastal infrastructure management plans for highly vulnerable districts (Ministry of Natural Resources, Environment and Meteorology 2005, 22, 23)	Provision of nursery to assist food security issues, water and health adaptive actions, assistance in search for funding, water management training, health inspection (Samani 2013b, 26) restoration of drainage infrastructure for storm water flows, watershed management plans (GCCA 2012e)
Solomon Islands	Agriculture, water resources, health, energy, mining, education, training, public awareness and information, waste management, tourism, fisheries, marine resources, human settlements, coastal protection, infrastructure development (Ministry of Environment, Conservation and Meteorology 2008, 6)	Distribution of water tanks, water committee set up, coastal protection (Samani 2013b, 27, 28) climate change and disaster risk reduction activities (GCCA 2012f)
Timor-Leste	R&D of technologies in agriculture, water resource, coastal/marine, improvement water management, protection and rehabilitation of rainfall catchment areas, protection and rehabilitation of mangrove ecosystems, national institutional capacity development, early warning systems, capacity	Rehabilitation of gravity flow water supply system, gravity pump rehabilitated, replanting mangroves, promotion of effective water use, reforestation (Samani 2013b, 29)

	building of health sector, improved strategic planning, review and revise legislation, building resilience of rural livelihoods to secure national food security (Timor-Leste's State Secretariat for Environment 2013, 7, 8)	restoration of rural communities, make farmers more responsive to environmental degradation, sustainable management of natural resources (GCCA 2012g)
Tonga	Integrated coastal protection, retreat and accommodation, introduction of drought, temperature and salt tolerant crops, agroforestry development, increase awareness, water conservation and management, climate proofing of planning, policy, legislation and all infrastructural development in Tonga, effective epidemiological surveillance of dengue fever for disease control, increase health education, public health awareness programmes, individual and institutional capacity developments (The Kingdom of Tonga 2012, 4)	Coastal protection measures (SPC 2011b) water project, training for water committee, rainwater tanks, duck farming and vegetable gardens for food security (Samani 2013b, 32)
Tuvalu	Increasing resilience of coastal areas and settlements to cc, increase subsistence pit grown pulaka productivity through introduction of salt-tolerant species, adaptation to water shortages through increasing household water capacity, water collection accessories and water conservation techniques, strengthening of community health through control of vector borne/climate sensitive diseases and promotion access to quality potable water, strengthening of community based conservation programmes on highly vulnerable near-shore marine ecosystems, adaptation to near-shore coastal shellfish fisheries resources and coral reef ecosystem productivity, strengthening community disaster preparedness and response potential (Department of Environment 2007, 7)	Water project, installation of water tanks, provision of bio-gas for cooking (2013b, 30)
Vanuatu	Diversification of crops, better understanding of horticulture and subsistence food crops, hygienic waste disposal methods, management of surface water catchments, maintenance of water supply networks, water conservation, expansion of rainwater storage, engineer constructions so that they withstand cyclone and other extreme events, disaster plan, reduction in harvests of marine resources, involvement of key social institutions, relocating infrastructure, improve understanding of cc, sustainable forestry management (Government of Vanuatu 1999, 33)	Piped water system, practical training on well construction, improved agricultural farming systems, fish farming, poultry farming, fish pond constructed (Samani 2013b, 33, 34) improved farming practices, rainwater harvesting, restoration of wetland, replanting of coastal vegetation, improved forest management (GCCA 2012h) early warming and monitoring system (EU 2012, 30)

Adaptive actions addressing the whole region are formal and informal training[115], awareness raising, implementation of adaptive actions, vulnerability and adaptation assessments of vulnerable communities, creation of adaptation action plans for demonstration sites, capacity building, applied research and sustainable development. (USP 2004a) Moreover, scientific understanding, climate projections and local knowledge will be integrated in the process of creating appropriate

[115] Topics and skills included in workshops and trainings are determined according to the needs and demands of practitioners.

adaptation strategies and a climate change knowledge centre was established. (GCCA 2012b) Mainstreaming of climate change, technical assistance and training, long-term strategies and approaches to adaptation planning and support to acquire funding from other donors are also important objectives. (SPC 2011b)

As can be seen from table 7.4, the GCCA really tries to respond to identified adaptation priorities. Adaptive actions not mentioned in NAPAs that originate from vulnerability and adaptation assessments can also be considered as appropriate. One respondent from QB summarised it nicely with a comment, stating that the GCCA recognises and acknowledges people's traditional knowledge as well as scientific research results. Naturally, the GCCA cannot provide the funding to address all vulnerable sectors of a country. The GCCA cooperates with other donors who are augmenting its work and provide assistance to climate change adaptation in other sectors. Usually, only certain communities and not the whole country benefits from adaptive actions, so that only a small part of the total population is reached. Many respondents of QA similarly claimed that funding is limited and more needs to be done.

Mrs Hemstock and Mr Smith opine, that the number of island states included in the regional USP-GCCA project is notable, as it intends to counter the diseconomies of scale. They approve of the attempt to share expertise and other resources, which is commendable in some respects. However, each of the states involved has their own set of issues and circumstances, and it might not be possible to operate under a 'one size fits all' approach. (Smith and Hemstock 2011, 3–8) This issue is also highlighted by the EU and PIF who maintain that comprehensive national strategies and action plans need to be established as the impacts of climate change will vary from country to country. (EU and PIF 2008a, 128) This aspect is also recognised by the IPCC, who maintains that adaptation is place and context specific, and therefore, diverse interests, circumstances, social-cultural contexts and expectations need to be considered. (IPCC WGII 2014, 22, 23)

Important for adaptive actions to be appropriate is first and foremost the inclusion of the community in the decision-making process. Over the past 25 years, this was problematic as Pacific Island states were used to apply adaptive solutions from external donors which were often culturally and environmentally inappropriate.[116] This is due to the limited understanding of the average person of

[116] Both donors and recipient governments have requirements, leading to islands having to accommodate adaptive solutions from different environmental contexts, imposed uncritically on

climate change and its impacts. Information on climate change has been filtered through private media presenting extreme views and situations which most communities cannot relate to their individual circumstances. Currently, Pacific communities are increasingly demanding effective and sustainable solutions, which are appropriate to their environments and cultures. (Nunn 2013, 151–159)

Additionally, problems persist on the distribution of development, which is usually concentrated in the core of a nation. The periphery often tends to be left behind, as they are difficult to access and may maintain a traditional way of life.[117] They are barely visited by government environment officers or representatives or international organisations. Thus, climate change solutions are differently understood and implemented; and usually the centre adopts the more appropriate solutions. On the periphery, people are often misinformed about climate change and decision making is led by instinctive responses. More work on rural areas, outer islands and secondary communities is needed. (Patrick D. Nunn 2009, 218; P. D. Nunn et al. 2013, 221)

It is widely accepted that traditional knowledge networks, technologies and skills can be used effectively to support adaptation in certain contexts[118]. (Nurse et al. 2014, 24) Community involvement is essential, as local people can provide insights into their interests, desires and perceptions. (Kelman 2010, 606) It is a mistake to equal islandness with vulnerability, as their characteristics can also contribute to resilience. These populations usually consist of tightly knit communities based on kinship which enables rapid and effective responses as everyone knows each other. Furthermore, local and traditional knowledge supports flexibility in using local resources and techniques to adjust to change. Thus, it is a mistake to ignore islander concerns regarding their fate under climate change. (Kelman and Khan 2013, 1132) Rather, a balance between internal processes and external assistance should be achieved. (Kelman 2010, 606)

One way to better include the community is to communicate the challenges of climate change effectively to Pacific Island decision-makers. This implies that communication occurs via local languages, and not English as many islanders are not comfortable speaking it. Additionally, climate change should be communicated in

environments and cultures, where they are far less effective. (Nunn 2013, 151)

[117] Young people leave to search employment in the centre, so that a traditional lifestyle is reinforced as only the elderly and children are left. (Nunn 2009, 218)

[118] Traditional systems appear less effective when multiple civilization-nature stresses are introduced. (Nurse et al. 2014, 25)

culturally appropriate and familiar terms to ensure that the message is clearly apprehended. Moreover, decisions are usually made by the community that owns the respective area; the government plays no role. Therefore, there is a lack of enforcement of policies and the top down approach commonly fails in the Pacific context. A bottom up approach, i.e. direct input to the community level, is necessary. (Nunn 2009, 216–220)

To sum up, for appropriate adaptation, communities have to recognise their need and seek help for themselves. The whole community has to participate in planning and implementing activities. (Weir and Orcherton 2013, 62) The community needs to be engaged in a two-way communication: they also have to offer important insights and it is important to understand the community to know which measures are necessary. And, most importantly, one size does not fit all. (McNamara, Hemstock, and Holland 2012, 24) The GCCA tries to apply these things in conducting individual vulnerability and adaptation assessments for the demonstration sites and including the community as much as possible.

7.5 GCCA-Influence on Social Networks

The result of the questionnaires showed that the GCCA cooperates with various regional organisations. Especially important are USP, SPREP and SPC who are implementing the two regional projects. Other regional partners are PIFS, World Wildlife Fund, IPCC, WMO, National Oceanic and Atmospheric Administration and GIZ. (USP 2013)

Furthermore, regional networks are created through USP students who come from all parts of the region and mostly stay there to support regional and national organisations and institutions. Workshops, conferences and seminars take place with participation of leading climate specialists from around the world and a regional mechanism to support access to international funding will be set up. (GCCA 2012b)

Nationally, cooperation takes place with climate change related ministries. Through the PSIS project, cooperation takes place in the Cook Islands with the Climate Change Cook Islands Office. In FSM, the GCCA cooperates with the Office of Environment and Emergency Management and the GIZ. In RMI, it is the Office of Environmental Planning and Policy Coordination and the Environmental Protection Agency. In Niue, the GCCA works with the Department of Meteorology and Climate Change and the Department of Environment. In Tonga, it collaborates with the Ministry for Environment and Climate Change and in Palau with the Office of

Environmental Response and Coordination, the National Environmental Protection Council and the National Climate Change Country Team. In Tuvalu, it is the Department of Environment. (SPC 2011b)

For the regional project in collaboration with USP, In-Country Coordinators were recruited to work together closely with the USP, EU and all stakeholders, NGOs and organisations in all 15 participating Pacific states. They conduct awareness activities, identify vulnerable sites, report back to the USP and share experience and knowledge. (Samani 2012a, 12) Thus, national as well as regional networks are created, which are supported by the network the USP creates through scholarship schemes and informal trainings with the participation of scholars, experts, scientists and practitioners. One respondent said that no new networks are created, but rather existing ones strengthened.

The annual progress report of December 2013 states that a climate change communications network is formed for Fiji and the region by the project communications officer as a platform for partners working in climate change to collaborate more effectively. A network of CROP agencies, NGOs, relevant government departments, civil society organisations and communications specialists of development partners is created through the GCCA project. (Samani 2013b, 15)

Also for the national projects, the GCCA cooperates closely with important stakeholders. In PNG, this is the Forest Authority and the Department of Forestry of the University of Technology. (GCCA 2012d) In Samoa, it works with the Land Transport Authority, the Water Steering Committee, the Cabinet Development Committee, the Ministry of Works, Transport and Infrastructure and the Ministry of Natural Resources. (GCCA 2012e) In the Solomon Islands, it collaborates with the Climate Change Division of the Ministry of Environment and Disaster Management. (GCCA 2012f) In Timor-Leste, it is the National Directorate for Forestry (GCCA 2012g) and in Vanuatu the Meteorology and Geohazards Department and the Department of Environmental Protection and Conservation. (GCCA 2012h)

The cooperation of the EU with regional organisations and institutions was also evident from QB, where respondents mainly stated that cooperation is either close or moderate. Furthermore, they say that the GCCA generally has a positive influence on the networking of regional actors, which is also evident from literature review.

In contrast, in 2006 the EU explicitly criticised that regional cooperation was ineffective. It said that the only structured interaction was provided by the post-Forum

dialogue, which was the only opportunity for heads of state and government to interact with main forum partners and donors at ministerial level. It takes place after the annual summit of the PIF leaders. On the PIF side, a panel takes part consisting of three ministers and the Secretary-General with one minister representing the Forum chair as head of delegation. On the EU-side, only the Commission is participating. To the EU, this dialogue was not reflecting the importance of the EU-Pacific relations and was insufficient in sustaining the bilateral relationship of the regions. There was a lack of formalisation and insufficient time for the EU to prepare its reaction to the summit outcome and also the time frame for the interregional dialogue itself was too limited to deal with comprehensive issues. Thus, impact of the cooperation was limited. (EC 2006, 25–26) Unfortunately, no actual record of this is available, so no comment can be made on whether the situation has improved by today.

7.6 GCCA-Influence on Regional Actors

The results of both questionnaires displays that both regional and national actors are strengthened through GCCA support. In QA, respondents stated that the Pacific countries are strengthened in their fight against climate change through capacity building, knowledge sharing, formal and informal training and on-the-ground activities in communities. Also in QB, the question was aimed at the political and economic influence of PICs, and answered by most participants with the GCCA having a rather strengthening influence.

The strengthening influence of the GCCA projects is also evident from literature review. Through the GCCA-USP project, a network of national and regional experts is expected to evolve who can support communities, governments, NGOs, development partners and regional organisations that often lack deep knowledge on climate change. Thus, the region’s capacity to adapt is to be developed and strengthened. (USP 2004) Significant progress was made on this issue in 2012, when personnel was trained in all 15 Pacific ACP states to assist their governments and communities in climate change adaptation initiatives. Moreover, all of the 15 countries have their own In-Country Coordinator now, who is trained on DRM and CCA. (Samani 2013b, 30–50)

Most importantly, the education of new experts at USP contributes to this. A crucial step in this component is the MoU of the USP with climate change related agencies in the region on internships, so that students can gather experience and

agencies can learn from the knowledge acquired during their studies. Furthermore, some students were able to attend the COP19 negotiations in Warsaw and some alumni are already working as lead negotiators for AOSIS, the Group 77, as lecturers, for the GIZ and as research assistants. (Samani 2013b, 5–13)

7.7 Effectiveness and Efficiency of GCCA Support

The question on effectiveness proved to be difficult to answer. Many participants stated that it is not yet measurable, since the projects have not been completely implemented. For long term processes, an increase of resilience cannot be measured after two years of project duration. In addition, a qualitative analysis would be necessary, looking at different vulnerability indicators. One problem measuring adaptation effectiveness is that it is difficult to define an unambiguous criterion for adaptation efficiency as most projects also have benefits in terms of health, safety or economic growth. Therefore, adaptation funding cannot be discussed in isolation from other policy components. (Przyluski and Hallegatte 2010, 2) Respondents maintain that the efforts of the GCCA cannot be seen alone, but in cooperation with funding partners. Many factors leading to resilience in Pacific countries might be independent of GCCA interventions but dependent on other donors and climatic events.

The opinion of participants is divided concerning the project impact of the GCCA, with some saying it is very limited as only one adaptive option in one sector is addressed and only few communities benefit from GCCA support. Important objectives are met but more funding is needed and the attitude of people has to change. In contrast, others responded that GCCA projects have been especially cost-effective and managed to turn small inputs into large outputs inspiring a ripple effect. This implies that circumstances differ in each project site, influencing the effectiveness of adaptation.

The distribution of answers in QB of the question on whether people are becoming more resilient or vulnerable was also rather ambivalent, tending towards people becoming rather resilient. One participant added that there was no change. This supports the outcome of QA, showing that it is currently difficult to answer the question.

The progress report of the USP-GCCA project published in December 2013 provides some insight into achievements. Among other things, it shows the results of a Results Oriented Monitoring which displays that effectiveness to date increased

from a C in 2012 to an A in 2013. Impact prospects were improved from a C to a B as well. (Samani 2013b, 9) The reason for this is that some of the projects' objectives have already been met.

Firstly, the objective of developing and strengthening Pacific ACP countries' capacity to adapt was to be reached through training of personnel in 15 ACP countries to assist and guide their governments and communities in CCA initiatives. By the end of 2013, 681 local trainers had been trained, 65 Postgraduate Diploma students graduated, and 14 students completed the MSc Climate Change. 101 rapid assessments were conducted in all 15 states, 37 full vulnerability and adaptation assessments were conducted, 26 adaptation plans were developed and nine countries started to implement their plans. (Samani 2013b, 49)

Another objective is capacity building through formal training, resulting in an increased number of local skilled professionals trained on climate change. By the end of 2014, 65 new postgraduate diploma students will be trained, which exceeds the original target of 45 students by 20. Additionally, 25 new master students and three new PhDs will be trained. 36 EU-GCCA postgraduate diploma in climate change scholarships have been granted so far, also exceeding the original aim of 16. By the end of 2014, 25 EU-GCCA masters in climate change scholarships should be granted; 22 have been granted so far. Also, the target of 316 trained trainers was exceeded as 681 local trainers have been trained so far. (Samani 2013b, 50)

The purpose of the project to improve the level of understanding of climate change in the region through formal and informal training, on-the-ground adaptation activities and applied research has also progressed. 516 locals were trained in five countries to raise community awareness of climate change, its impacts and what can be done in response. 43 demonstration sites have to implement, monitor and evaluate their adaptive measures; so far, nine countries have started implementation. The creation of a Locally Managed Climate Change Alliance (LMCCA) network between specialists and communities involved in the demonstration projects will commence in 2014. Another aim is that at least 25% of PACE-SD scholarship graduates work in a field related to climate change and help their governments, NGOs, AOSIS and regional organisations in their effort to adapt to climate change. A PACE-SD alumni profile was set up online to visually track this indicator. (Samani 2013b, 49, 50)

One important result is an increase in community engagement in adapting to climate change. For this, NPACs are to be established in 15 countries. Additionally,

101 rapid assessments have taken place, far more than planned, and 37 of 43 community vulnerability and adaptation assessments have been documented by the end of 2013. All of these 43 communities have to develop adaptation plans, of which so far 26 have been completed. (Samani 2013b, 53)

Other objectives are to improve historical climate analysis, projected climate analysis, understanding of climate change impacts on sectors, improved understanding of challenges and opportunities of multilateral environmental agreements and to develop more robust projections of short, medium and long term weather and climate forecasts. ICCs, regional resource managers, students and community members with access to meteorological forecasts data and awareness of regional climate services products have been increased to the targeted number. (Samani 2013b, 54, 55)

However, many Pacific leaders have stressed that they are generally not benefiting from the pledged fast-start finance of the EU, Japan and other nations. (Maclellan 2011, 4) The main tensions identified for the effective delivery of adaptation funds are a lack of donor coordination, the conditions attached to individual funds, the short-term approach of Pacific politicians and the weak capacity of Pacific governments. (Maclellan and Lebedev 2011, 3) Questionnaire participants also explained that funding is available, but that there is a problem with implementers and management.

Because of the lack of donor coordination, there does not exist a unified system of funding. Instead, everyone has their own governance and accountability requirements. There are over 40 international and regional funding mechanisms, some global funds and bi-lateral initiatives, such as the GCCA. Attached to this is the complexity of donor requirements which delays the delivery of funds. (Maclellan and Lebedev 2011, 3) Besides this, there is a general lack of consultation between governments and non-state actors, which is actually legally binding under the Cotonou Agreement. (EU and PIF 2008a, 185) Inclusive and meaningful partnerships should be built between these. (Maclellan, Meads, and Coates 2012, 8) Better collaboration between governments, non-state actors and donor organisations would not only make adaptation more efficient, but also help to minimise the duplication of development tools. (Samani 2013b, 6)

Moreover, governments need to play a leadership and coordinating role to mobilise a broad response across Pacific countries based on the common aim to build resilience. (Maclellan, Meads, and Coates 2012, 1) Currently, they are focused

on economic growth and short term objectives, investing little in non-profit environmental sustainability. To ensure effectiveness, they should take more ownership of adaptation and external assistance should not be applied routinely but only for special issues. (Nunn 2009, 211)

Another problem is the weak capacity of Pacific government ministries because they are so small and their staff has difficulties coordinating their roles which directs attention away from concrete work. (Maclellan and Lebedev 2011, 3) 35% of funding is usually designated for supporting the administration of the aid sector, instead of delivering practical projects. (Smith and Hemstock 2011, 10)

Furthermore, as the access to adaptation finance depends on the evidence of climate vulnerability, some people fear that countries will compete to compose the most confronting vulnerability assessments to increase their attractiveness as funding destinations. Climate finance is vulnerable to corruption due to the lack of transparency, accountability and integrity. This could delegitimise global climate finance at state and community levels. Thus, resource flows should be tied to the institutions, policies and recipient governments, so that those affected by adaptive measures have a stake in owning the process and results of local climate governance. (Ewing 2013)

A good practices review of the USP provides a list of recommendations to make adaptation to climate change effective: adaptation projects should set out clear and achievable objectives, traditional hierarchical systems should be understood and respected, education and awareness raising should be done in local languages, local knowledge should be included in adaptation planning and adaptation activities should be open, transparent and participatory, so that the needs and interests of various stakeholders are balanced. (USP 2011, 10)

Furthermore, learning and accountability should generally be strengthened through sound accessible information, evidence and monitoring and evaluation across society to improve performance. National capacity should be enhanced by increasing resources, aligning funding with national strategies, increasing staff training, improving national collaboration, enhancing government capacity, expanding inclusive technical working groups, strengthening capacity in outer islands and remote areas and building capacity for non-state actors. (Maclellan, Meads, and Coates 2012, 8, 58) Such an advice also came from a questionnaire participant, who states that adaptation projects should be located in the remotest regions irrespective of the costs, as these people have the least resources and knowledge to cope and

are the most exposed and susceptible.

The USP sees the most effective approach to climate change adaptation as a mix of top-down institutional capacity building and bottom-up community level project implementation. This is the strategy the GCCA is applying in the regional project in cooperation with USP. For climate change adaptation to be manageable and cost effective, it should be accomplished collectively among all development partners. The priority objective for the PICs in the 21st century is to mainstream climate change adaptation and disaster risk reduction in all national development goals. (USP 2011, 42, 43) Finally, to improve access to climate funding, the Pacific engagement in global negotiations should be strengthened. (Maclellan, Meads, and Coates 2012, 70)

Aid effectiveness is recognised by Pacific leaders as paramount for adaptation planning and implementation. They adopted the Pacific Principles of Aid Effectiveness which draw on the Paris Declaration from 2007. Important aspects highlighted in these principles are ownership[119], alignment[120], harmonisation[121], mutual accountability, managing for results and policy coherence. (EU and PIF 2008a, 53, 54) The GCCA is piloting the use of budget support as a delivery mechanism to enhance aid effectiveness. (GCCA 2012a)

However, both the results of the questionnaires and the literature review show that the GCCA seems to be on the right path, but a lot more needs to be done to achieve effective outcomes. For most projects, effectiveness is not yet measurable as the implementation has either not begun or still has to be completed. Thus, some time will need to pass before a final evaluation can be done.

7.8 Sustainability

Among questionnaire participants, answers on the issue of sustainability varied, but were mostly positive. They mentioned that sustainability is highly dependent on whether the project is community-owned and what kind of adaptation is implemented. Some recognise that the GCCA tries to provide help to communities to help themselves. In QB, most respondents said that the GCCA rather supports independence, but the distribution of answers was mixed, so no clear statement can be made. Thierry Catteau, working for the Infrastructure, Natural Resources, Environment and Energy Section of the EU Delegation for the Pacific stated in

[119] Developing countries set the agenda
[120] Donors align with country agendas and use country systems
[121] Donors establish common arrangements, share information and simplify procedures

relation to the USP-GCCA project that the communities and staff should be able to sustain the project as the ground work has already been laid. (Samani 2013b, 70)

On the other hand, participants remarked that more funding is necessary and that more needs to be done concerning the training of local people and to overcome short-term adaptation approaches. One participant stated that dependence is currently predominant and that these temporary fixes only buy time. From the literature review it becomes clear that the preconditions for sustainability are similar to these for effectiveness and appropriateness. Community participation and ownership, government capacity, donor coordination and the cooperation of all stakeholders are essential.

The collaboration between stakeholders can increase effectiveness as it can lessen the occurrence of simple mistakes. Vulnerability is expected to increase where coordination is limited and where community organisations are operating in isolation. (Ferdinand et al. 2012, 84pp) Local networks and trusting relationships between communities and government appear to be essential for adaptation. (Nurse et al. 2014, 27)

It is often the case that new ideas are explained, absorbed, accepted and ignored thereafter. Climate change is continuously regarded as a foreign construct. The perception that it is the developed nations who are responsible and will do something about it is widely spread. Thus, a culture of dependence is created, turning climate change into an alien problem which has to be solved by outsiders. (Nunn 2009, 213) However, donors usually guarantee funding for three to five years to fund certain initiatives. Unfortunately, recipient governments generally do not take over the costs of these projects, so they are terminated after the external funding ends. Thus, circumstances revert to those existing prior to donor projects. This approach discourages the ownership of climate change adaptation by Pacific people and subordinates it to donor preferences. (Nunn 2013, 151)

It has been assumed that showing the communities what to do would result in them doing it as well, but adaptation has remained a foreign business. The fact that almost all information on climate change in the last decade has been in English, a foreign language to the majority of local people, has contributed to this. For adaptation to be sustainable and effective, people have to take ownership of the projects. As aforementioned, climate change should be discussed in vernacular languages and in appropriate cultural contexts. (Nunn 2013, 159) In many cases, information on climate change is presented from a scientific viewpoint without

considering how the audience receives that information. As decision-makers and the general public in the Pacific do not have an extensive knowledge on climate change impacts and how to deal with them, they currently perceive to not be affected. Instead, they require real-world tangible examples to understand their problem. (Glantz and Kelman 2013, 1–6)

For this reason, there is a lack of commitment of political leaders, who are more concerned about economic development. As they have little money, they usually do not invest into things without a short-term financial gain, but invest into tourism, mining and forestry instead. Long-term planning is needed, but problematic in smaller poorer democratic nations as many less educated people in rural areas are not too concerned about their islands' long-term future. The short-term consequences of sustainable development are unpopular and governments that give money to individual pockets tend to be re-elected, so that politicians are generally not brave enough to follow through with politics that hinder economic development and income. (Nunn 2009, 213–225)

Therefore, environmental sustainability is marginalised by politicians who satisfy international watchdogs through subscribing to the rhetoric of sustainable development and ratifying all relevant international agreements to secure the steady flow of external assistance. This subordination of climate change is encouraged by international donors who accept the situation. (Nunn 2009, 218, 219)

In addition, there is a lack of capacity of national governments in the Pacific to respond to climate change. Most governments have departments responsible for national environmental management, but few have personnel responsible for climate change. If they do, these are usually funded by external aid and only on a short-term contract. Government employees working in environmental management are generally overstretched that they are unable to develop or implement appropriate strategies. It also seems as if the attendance of courses to build government capacity to deal with climate change is ineffective. (Nunn 2009, 219)

In fact, many efforts focus on capacity building within governments to understand and confront climate change, but so far, no government managed to produce a climate action plan varying significantly from international agendas. International priorities thus become national priorities and lead to a lack of will to enforce these. Therefore, improved understanding of climate change and the enforcement of climate related policy are key challenges for Pacific decision-makers. (Nunn 2009, 215)

This need to increase people's skills and capacity in relation to climate change and appropriate adaptive activities to achieve sustainability is also recognised by the USP. Capacity in understanding climate science and analysis and interpretation of climatic data should be increased. In addition, the understanding of the effects of site specific coastal processes and impacts of sea-level rise to coastal zones and infrastructure needs to be developed. Also, the risks and costs of climate variability and change should be quantified. (USP 2011, 10, 40–44)

Furthermore, since communities often make decisions independently of their national governments, persons of influence at community level should be given information rather than their governments. These are usually more concerned with their people and sustainable interactions of these with the environment. As they often lack knowledge on appropriate responses to climate change, they should be empowered to take appropriate decisions. Traditional leaders often make short-term decisions, which could thus be turned into informed and sustainable ones. (Nunn 2009, 215; Nunn 2013, 160–165)

Moreover, as there are too many communities vulnerable to climate change to visit each individually, strategies should be developed whereby communities can share their experiences with similar communities. The internet would be appropriate to realise this, but unfortunately many rural communities do not have access. (Nunn 2009, 221) Local knowledge should be accepted and not be subordinated to Western science and technology. Local strategies to deal with climate change are sometimes wrongly dismissed, as it is the lack of supportive institutions and financial resources that constrains them from implementing adaptive measures. (Kelman and West 2009) The USP identifies the hardest part to be the bringing about of a behaviour change for adaptation. It acknowledges that sustained communication through traditional and non-traditional methods will be necessary. Participatory solution finding and engagement with the community are key for a successful adaptation process. (Samani 2012a, 12–51)

Various scholars suggest that adaptive responses that augment actions which would be taken in the absence of climate change are the most effective and sustainable ones. (Mimura et al. 2007, 709) With medium confidence, the IPCC says that climate change adaptation generates a larger benefit to small islands when it is delivered in conjunction with other development activities. (Nurse et al. 2014, 3) The GCCA recognises that climate change is linked to all sectors of development and needs to be a central consideration in national planning and development. Thus, it is

committed to embed climate change into all national and sector development planning and budgeting, i.e. mainstreaming climate change. This enables partner countries to tackle the impacts of climate change today and in the future. Mainstreaming uses national agendas and systems and supports institutional strengthening and capacity building and thus upholds the principles of aid effectiveness. (GCCA 2012a)

The GCCA's major objective is “[t]o improve understanding of climate change regionally through formal and informal training, practical on-the ground adaptation activities at community level, and applied research.” (GCCA 2012b) It tries to implement a sustainable approach to climate change adaptation in various ways. As aforementioned, it actively involves communities in identifying vulnerabilities and deciding which adaptive measures will be implemented, to ensure that they will continue the projects. Raising awareness and community workshops on climate change and adaptation aim at enhancing local people's knowledge of and concern for these issues. The formal education at USP educates local people on climate change who can then support their governments and eventually increase their capacity. Vulnerability and adaptation assessments not only provide information for the USP but also to other stakeholders and communities who can learn from another community's experience. Moreover, communities are enabled to seek funding on their own.

Nunn provides a list of the most sustainable solutions to various issues. As an example, he opines that as the key effects of increased climate variability and extreme events affect the water sector and agriculture, their exposure should be reduced by changing crop types and improving food preservation and water storage capacity. Shoreline erosion is sustainably confronted by planting mangroves and restoration of coral reefs. A sustainable solution to inundation would be the relocation of people, except that it is difficult and problematic. He provides a table with a collection of sustainable solutions to various climate change challenges. (Nunn 2009, 221, 222)

Some actions of the GCCA in the Pacific align with Nunn's recommendations. Many projects of the initiative are focussed on providing and improving water supply systems to increase water storage capacity. The GCCA also tries to support the management of these systems. The construction of gardens and support for animal farming helps ensure food security. Coastal protection is often translated into replanting of coastal vegetation, sometimes into sea walls. Nevertheless, the effort

made by the GCCA to support sustainability is obvious.

The most sustainable, appropriate and effective solution to sea-level rise and other climate change related issues in the Pacific will eventually be relocation. As climate change potentially affects natural resources and human security, the pressure on people to leave their homeland increases. Even before the islands drown, they will become uninhabitable because their freshwater lenses will vanish. (Nunn 2013, 164) Various authors concur that there will be a need for migration due to the high costs of adapting on islands. (Nurse et al. 2014, 26)

Scheffran et al. (2012) opine, “Throughout history, human migration has been an adaptive response not only to poverty and social deprivation but also to environmental and climatic change.” Despite the fact that migration was often associated with hardships, it offers opportunities to obtain new knowledge, income and other resources and create social networks across regions. “This social capital contributes to the adaptive capacity and resilience of home and host communities and helps to develop joint responses against climate change.” (Scheffran, Marmer, and Sow 2012, 119)

There are three types of migration: adaptation preventing forced migration, migration-as-adaptation and migration-for-adaptation. Currently, adaptation preventing migration remains dominant but with the increasing relevance of climate change, migration-for-adaptation might gain importance. The 2010 Cancun Accord of the UNFCCC laid the foundations for accepting migration as a legitimate adaptation option and could require financial and institutional mechanisms to facilitate the migration-as-adaptation option. (Scheffran, Marmer, and Sow 2012, 120, 126)

However, evidence of migration as response to climate change is scarce for small islands. (Black et al. 2011, 9) Relocation is the option of last resort for various reasons. Both the host governments and islanders themselves resist in implementing this policy. (Smith and Hemstock 2011, 3) Firstly, few islanders have the social and economic capital to migrate (Maas and Carius 2012, 656); and few coastal communities own inland areas to which they could move. In addition, they are accustomed to coastal life and are unable to readily sustain themselves elsewhere. (Nunn 2009, 212) Land and culture in the Pacific is intertwined, which implies that relocation is perceived as threat to the identity and culture of a people. (Weir and Orcherton 2013, 62)

A convention encompassing their position does not exist, as they require temporary protection with the possibility for future return. Bilateral agreements should

thus be established about the reception of displaced people. The establishment of soft law would allow states to introduce displacement at their own pace in their domestic legislation. As an example, the government of Kiribati's strategy is to secure migration options to New Zealand and Australia. (Yamamoto and Esteban 2014, 86, 277, 278)

Currently, there is no major destination country with a pro-active policy designed to resettle the people affected by environmental hazards. As it is very likely that this future displacement will take place, the international community should establish a framework to guide the process, before the problem begins to become important. At the moment, international refugee and immigration policy would not include these people and they would become de facto stateless. (Yamamoto and Esteban 2014, 276)

This problem has been widely discussed already. Especially atolls could cease to be considered sovereign states after their islands have been eroded, as territoriality has long been the exclusive way of exercising political power. These states could even lose their EEZ if they disappear or turn into rocks. Several solutions for this issue already exist, proposing to construct a lighthouse to mark the island for the time it is uninhabitable or to build house on stilts, construct dykes and raise the island for people to stay. (Yamamoto and Esteban 2014, 4, 160–170)

There are three different scenarios for atoll island states who completely lose their land, which is either continued recognition, selective recognition or complete loss of statehood. The last option is unlikely as states which have once been recognised as such will probably not lose their status. One last thing to add is that migration has always been used by humans to adapt to changing environmental circumstances. (Yamamoto and Esteban 2014, 210–219)

8 Conclusion and Outlook

This thesis provided a comprehensive introduction to the work of the EU-GCCA in the Pacific and showed what people working in the field of climate change adaptation think about the initiative and various aspects of its work. A summary of the most important results is presented below.

The opinion of experts from the field of climate change adaptation on the adaptation support of the GCCA in the Pacific is predominantly positive. They highlight the effort to involve local people as an essential part of GCCA assistance. In theory, members of the community are enabled to voice their concerns and influence adaptation projects to the actual needs of the community. However, in practice, community involvement is still a serious issue for various reasons.

Respondents are of the opinion that too few people are benefitting from GCCA support. The reason for this probably is that funding is generally limited and that only few demonstration sites are selected in each country, so that only a small part of the total population is reached. Another point of critique is missing donor coordination, which presents itself for instance in a lack of a unified system of funding.

As one of the biggest donors in the Pacific region, the EU is generally known to educated people in the Pacific. In contrast, the visibility of the GCCA is low.

The major motives for the EU to finance climate change adaptation in the Pacific mentioned were responsibility, obligation, morals, prestige, international influence and access to resources. Participants further named the achievement of the MDGs, stability and peace, shared values and UN votes.

The question on who benefits from GCCA support was often answered with the local, vulnerable people benefiting, as many projects are directly aimed at building the resilience of certain communities. Additionally, national structures and regional organisations were stated to be beneficiaries.

So far, GCCA projects have been appropriate, as they try to act according to the respective country's NAPA. In-Country Coordinators were recruited to work together closely with the USP, EU and all stakeholders, NGOs and organisations in all 15 participating Pacific states. They conduct awareness activities, identify vulnerable sites, report back to the USP, conduct vulnerability and adaptation assessments and share experience and knowledge. Vulnerability and adaptation assessments can be further used by other bodies who want to support adaptive measures in the respective communities. Projects are community based but also

collaborating with local institutions such as relevant government agencies and NGOs to ensure appropriateness.

The GCCA cooperates regionally mainly with SPC, SPREP, PIF, USP and GIZ. Nationally, it cooperates with the In-Country Coordinators and climate change related government ministries. The GCCA is stated to cooperate closely within regional networks and to have a positive influence on these. Moreover, it is positively influencing regional and national actors in the Pacific, who are strengthened through the training of local people in climate change issues at the USP. A network of national and regional experts is expected to evolve who can support communities, governments, NGOs, development partners and regional organisations that often lack deep knowledge on climate change.

The effectiveness of the projects is difficult to measure as many factors contribute to whether people become more resilient or not and as the efforts of many donors cooperate. In addition, it is difficult to measure at the moment as the implementation phase of almost all projects is not yet completed. Participants commented on this issue that the project impact strongly depends on the willingness of the people, the capacity of government and donor coordination. Nevertheless, one can observe that the GCCA is progressing well on reaching its objectives. A results-oriented monitoring for the USP-GCCA project showed that its effectiveness has improved in the last year.

Sustainability, effectiveness and appropriateness are closely linked to each other and have similar preconditions. The GCCA is making an effort for sustainability and it is hoped for that local people will pursue the adaptive measures after the projects expired. Important aspects contributing to sustainability which are followed by the GCCA are the involvement of communities to decide for themselves how to adapt, capacity building of relevant agencies, awareness raising, experience sharing, on-the-ground activities and mainstreaming adaptation to climate change into all sectors. Relocation is a viable adaptive option under certain circumstances and might be inevitable in the future. It has always been used by humans to adapt to changing environmental circumstances.

The questionnaire results and the literature review have shown that it is still too early to evaluate the ongoing GCCA projects in the Pacific region. One can gain some first impressions but a lot of development will certainly continue to take place. Moreover, for a more comprehensive and representative study, it is obligatory to make a field trip to the supported communities. Face to face interviews are more

sensible and provide more insight than trying to reach the people via e-mail, as not all people have access to the internet and the connection is often bad. The time difference delays e-mail communication and barely allows for telephone interviews. Another fact realised during the questionnaires is that only a few experts on the issue of climate change adaptation in the Pacific reside in Europe, where study often focusses on other regions.

It has to be acknowledged that the Pacific Region is a vast area and as a result, does easily lend itself to generalisations. Climatic conditions, physical geography, ethnic background and other issues vary greatly. In addition, many questions relate not only to the GCCA but also to climate change adaptation issues in the Pacific in general. This is because the success of adaptation in the region is dependent on the work of other bodies and the development of climate change in the future. An analysis of other adaptive actions would be needed to see the GCCA in the context of other organisations and institutions dealing with climate change.

Bibliography

Adger, Neill, Shardul Agrawala, and Monirul Qader Mirza. 2007. “Assessment of Adaptation Practices, Options, Constraints and Capacity.” In *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, 717–43. Cambridge, UK: Cambridge University Press.

Barnett, J., and J. Campbell. 2010. *Climate Change and the Small Island States: Power, Knowledge and the South Pacific.* London and Washington DC: Earthscan.

Black, R., W. N. Adger, N. W. Arnell, S. Dercon, A. Geddes, and D. Thomas. 2011. “The Effect of Environmental Change on Human Migration.” *Global Environmental Change* 21 (Suplement 1): 3–11.

Brown, J. N., A. S. Gupta, J. R. Brown, L. C. Muir, J. S. Risbey, P. Whetton, X. Zhang, A. Ganachaud, B. Murphy, and S. E. Wijffels. 2013. “Implications of CMIP3 Model Biases and Uncertainties for Climate Projections in the Western Tropical Pacific.” *Climatic Change* 119 (1): 147–61.

Cambers, Gillian, and Sarah Hemstock. 2014. “Letter to Countries”. GCCA.

Cameron, F. R. 2011. “Saving the ‘disappearing Islands’: Climate Change Governance, Pacific Island States and Cosmopolitan Dispositions.” *Continuum* 25 (6): 873–86. doi:10.1080/10304312.2011.617879.

Carbon Market Solutions. 2010. “A Report to SPREP on Mobilising Climate Change Funding in the Pacific Islands Region”. Carbon Market Solutions.

Climate Finance Options. 2013. “Global Climate Change Alliance.” *Climate Finance Options*. http://climatefinanceoptions.org/cfo/node/202.

Council of the European Union. 2008. “Press Release: Inaugural European Union - Pacific Islands Foum Ministerial Troika Final Communiqué.”

Department of Environment. 2007. “Tuvalu’s National Adaptation Programme of Action”. Ministry of Resources, Environment, Agriculture and Lands.

Dornan, Matthew. 2014. “Pacific Plan Reviewed: What next? | Devpolicy Blog from the Development Policy Centre.” http://devpolicy.org/pacific-plan-reviewed-what-next-20130204/?utm_source=Devpolicy&utm_campaign=d09e76f8c6-Devpolicy_News__February_17_2014&utm_medium=email&utm_term=0_082b498f84-d09e76f8c6-312052785.

EC. 2007. “Communication from the Commissions to the Council and the European Parliament: Building a Global Climate Change Alliance between the European Union and Poor Developing Countries Most Vulnerable to Climate Change”. EU.

———. 2011. “Press Release: Pacific Islands - EU Relations: Focus on Climate Change.” http://europa.eu/rapid/press-release_MEMO-11-127_en.htm.

EU. 2011a. “Press Release: Pacific Islands and Climate Change: Commission Takes the Lead to Help with Adaptation and Fight Poverty.”

———. 2011b. “Global Climate Change Alliance: Using Innovative and Effective Approaches to Deliver Climate Change Support to Developing Countries.”

———. 2012. “Paving the Way for Climate Compatible Development: Experiences from the Global Climate Change Alliance”. European Union.

EU Delegation Fiji. 2011. “Press Release: EU Supports the University of the South Pacific with €8 Million for Climate Change Education.”

EU, and PIF. 2007. “EU - PIF Special Dialogue: Joint EU-PIF Nuku’alofa Declaration.”

———. 2008a. “Pacific Region - European Community Regional Strategy Paper and Regional Indicative Programme for the Period 2008 – 2013.” http://ec.europa.eu/development/icenter/repository/scanned_r6_rsp-2007-

2013_en.pdf.
———. 2008b. “Declaration by the Pacific Islands Forum States and the European Union on Climate Change.”
———. 2012. “Annex to the Joint Communiqué - 2nd EU-PIF Ministerial Meeting: Joint Pacific-EU Plan of Action on Climate Change 2012-2014.”
European Commission. 2006. “Communication from the Commission to the Council, the European Parliament and the European Economic and Social Committee: EU Relations with the Pacific Islands - A Strategy for a Strengthened Partnership.”
———. 2012a. “Joint Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Towards a Renewed EU-Pacific Development Partnership.”
———. 2012b. “Press Release: New EU-Pacific Development Partnership to Tackle Climate Change and Fight Poverty.” europa.eu/rapid/press-release_IP-12-364_en.doc.
European Communities. 2009. “EU and Developing Countries Working Together”. Publications Office of the European Union.
European Union. 2013. “Pacific-EU Relations.” *Delegation of the European Union to Solomon Islands*. http://eeas.europa.eu/delegations/solomon/pacific_eu/pacific_relations/index_en.htm.
Evangelidis, Ioannis-Pavlos. 2013. “Climate Change in the Pacfic and the EU”, June 14.
Ewing, J. Jackson. 2013. “Financing Climate Adaptation in the Asia-Pacific: Avoiding Flawed Aid Paradigms.” https://www.academia.edu/3611252/Financing_climate_adaptation_in_the_Asia-Pacific_Avoiding_flawed_aid_paradigms.
FAO. 2008. “Climate Change and Food Security in Pacific Island Countries.”
Federal Information & News Dispatch, Inc. 2012. *U.S.-EU Statement on the Asia-Pacific Region*. State Department Documents / FIND. United States: Federal Information & News Dispatch, Inc. http://search.proquest.com/docview/1024543968?accountid=105241.
Ferdinand, I., G. O’Brien, P. O’Keefe, and J. Jayawickrama. 2012. “The Double Bind of Poverty and Community Disaster Risk Reduction: A Case Study from the Caribbean.” *International Journal of Disaster Risk Reduction* 2 (0): 84–94.
FSM National Government. 1997. “1997 Climate Change National Communication, Federated States of Micronesia”. FSM National Government.
GCCA. 2012a. “About the GCCA.” http://gcca.eu/about-the-gcca.
———. 2012b. “GCCA Pacific Islands Forum Support Programme.” *Global Climate Change Alliance*. http://gcca.eu/intra-acp/gcca-pacific-islands-forum-support-programme.
———. 2012c. “Pacific Small Island States.” *Global Climate Change Alliance*. http://gcca.eu/regional-programmes/gcca-pacific-small-island-states.
———. 2012d. “Technical Support to the Papua New Guinea Forest Authority to Implement a Continuous and Multi-Purpose National Forest Inventory.” http://gcca.eu/national-programmes/pacific/gcca-papua-new-guinea.
———. 2012e. “Supporting Climate Change Adaptation for the Samoan Water Sector.” http://gcca.eu/national-programmes/pacific/gcca-samoa.
———. 2012f. “The Solomon Islands Climate Assistance Programme.” http://gcca.eu/national-programmes/pacific/gcca-solomon-islands-climate-assistance-programme.
———. 2012g. “Global Climate Change Alliance Support Programme to Timor-

Leste.” *Global Climate Change Alliance*. http://gcca.eu/national-programmes/pacific/gcca-timor-leste.
———. 2012h. “GCCA Thematic Support Programme for Vanuatu.” *Global Climate Change Alliance*. http://gcca.eu/national-programmes/pacific/gcca-thematic-support-programme-for-vanuatu.
Gillespie, Alexander. 2003. “Small Island States in the Face of Climatic Change: The End of the Line in International Environmental Responsibility.” *Journal of Environmental Law and Policy* 22: 107–29.
Glantz, Michael H., and Ilan Kelman. 2013. “Thoughts on Dealing with Climate Change…As If the Future Matters.” *International Journal of Disaster Risk Science* 4 (1): 1–8.
Government of Vanuatu. 1999. “Vanuatu National Communication”. Government of Vanuatu.
Harmeling, Sven, and Christoph Bals. 2007. “Die Millennium-Entwicklungsziele Und Der Globale Klimawandel”. Germanwatch e.V. http://germanwatch.org/klima/klimdg07.htm.
Hay, John E. 2012. “Disaster Risk Reduction and Climate Change Adaptation in the Pacific: Institutional and Policy Analysis”. UNISDR Asia and Pacific. http://www.unisdr.org/we/inform/publications/26725.
Heuson, Clemens, Wolfgang Peters, Reimund Schwarze, and Anna-Katharina Topp. 2013. *Investment and Adaptation as Commitment Devices in Climate Politics*. 11. Discussion Paper Series recap15. Frankfurt (Oder): European University Viadrina.
Ide, Tobias, Jürgen Scheffran, and Janpeter Schilling. 2012. “Führt Klimawandel Zu Gewaltkonflikten?” *Wissenschaft & Frieden* 3: 7–9.
International Climate Change Adaptation Initiative. 2013. “Climate Variability and Change in the Pacific Islands and East Timor”. Australian Government. http://www.pacificclimatechangescience.org/wp-content/uploads/2013/06/PCCSP-_ClimateVariabilityChange.pdf.
IPCC. 2001. “Summary for Policymakers.” In *Climate Change 2001: Impacts, Adaptation, and Vulnerability*.
———. 2007. “Summary for Policymakers.” In *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, edited by M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden, and C.E. Hanson, 7–22. Cambridge, UK: Cambridge University Press.
IPCC WGII. 2014. *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Summary for Policymakers. Approved SPM – Copyedit Pending.* IPCC.
Kelman, Ilan. 2010. “Hearing Local Voices from Small Island Developing States for Climate Change.” *Local Environment* 15 (7): 605–19.
———. 2013. “No Change from Climate Change: Vulnerability and Small Island Developing States.” *The Geographical Journal*, 1–10.
Kelman, Ilan, and Shabana Khan. 2013. “Progressive Climate Change and Disasters: Island Perspectives.” *Natural Hazards* 69: 1131–36.
Kelman, Ilan, and Jennifer J West. 2009. “Climate Change and Small Island Developing States: A Critical Review.” *Ecological and Environmental Anthropology* 5 (1): 1–16.
Kiribati Government. 2013. “Second Communication under the United Nations Framework Convention on Climate Change”. Kiribati Government.
Kuruppu, N., and D. Liverman. 2011. “Mental Preparation for Climate Adaptation: The Role of Cognition and Culture in Enhancing Adaptive Capacity of Water Management in Kiribati.” *Global Environmental Change* 21 (2): 657–69.

Maas, Achim, and Alexander Carius. 2012. “Territorial Integrity and Sovereignty: Climate Change and Security in the Pacific and Beyond.” In *Climate Change, Human Security and Violent Conflict*, edited by Jürgen Scheffran, Michael Brzoska, Hans Günter Brauch, Peter Michael Link, and Janpeter Schilling, 651–65. Hexagon Series on Human and Environmental Security and Peace 8. Springer Berlin Heidelberg. http://link.springer.com/chapter/10.1007/978-3-642-28626-1_32.

Maclellan, Nic. 2011. “Turning the Tide: Improving Access to Climate Finance in the Pacific Islands”. Lowy Institute.

Maclellan, Nic, and Katerina Lebedev. 2011. “Unpacking the ‘Fast Start Finance’ Initiative: A Review”. Pacific Calling Partnership.

Maclellan, Nic, Sarah Meads, and Barry Coates. 2012. “Owning Adaptation in the Pacific. Strengthening Governance of Climate Adaptation Finance”. Oxfam New Zealand.

Malik, Zahida Abdul. 2011. “The Cotonou Agreement: An Assessment.” *Journal of European Studies* 27 (2): 123–51.

McGray, H., A. Hammil, and R. Bradley. 2007. “Weathering the Storm. Options for Framing Adaptation and Development.” World Resources Institute, Washington DC.

McNamara, Karen, Sarah Hemstock, and Elisabeth Holland. 2012. “Practices of Climate Change Adaptation in the Pacific: Survey of Implementing Agencies (Phase II)”. USP PACE-SD.

Mimura, N.L., L. Nurse, R.F. McLean, J. Agard, L. Briguglio, P. Lefale, P. Payet, and G. Sem. 2007. “Small Islands.” In *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, edited by M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden, and C.E. Hanson, 687–716. Cambridge, UK: Cambridge University Press.

Ministry of Environment, Conservation and Meteorology. 2008. “Solomon Islands National Adaptation Programme of Action”. Ministry of Environment, Conservation and Meteorology Solomon Islands.

Ministry of Natural Resources, Environment and Meteorology. 2005. “National Adaptation Programme of Action Samoa”. UNDP.

NAB. 2012. “Vanuatu GCCA Project Brief Dec 2012.” *National Advisory Board on Climate Change and Disaster Risk Reduction*. http://www.nab.vu/vanuatu-gcca-project-brief-dec-2012.

Nakhooda, Smita, Charlene Watson, and Liane Schalatek. 2013. “The Global Climate Finance Architechture”. Heinrich Böll Stiftung. http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8685.pdf.

Namindrik, Yumie. 2000. “Initial Communication under the United Nations Framework Convention on Climate Change”. Republic of the Marshall Islands Environmental Protection Authority.

Natapei, Edward. 2009. “GCCA Thematic Support Programme for Vanuatu.” http://gcca.eu/national-programmes/pacific/gcca-thematic-support-programme-for-vanuatu.

National Environment Service. 2011. “Cook Islands Second National Communication under the United Nations Framework Convention for Climate Change”. Government of the Cook Islands.

Nicholls, R.J., P.P. Wong, V.R. Burkett, J.O. Codignotto, J.E. Hay, R.F. McLean, S. Ragoonaden, and C.D. Woodroffe. 2007. “Coastal Systems and Low-Lying Areas.” In *Climate Change 2007: Impacts, Adaptation and Vulnerability.*

Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, edited by M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden, and C.E. Hanson, 315–56. Cambridge, UK: Cambridge University Press.

Niue Climate Change Project. 2000. “Niue Island Initial National Communication”. Government of Niue.

Nunn, P. D., W. Aalbersberg, S. Lata, and M. Gwilliam. 2013. “Beyond the Core: Community Governance for Climate Change Adaptation in Periopheral Parts of Pacific Island Countries.” *Regional Environmental Change* 14 (1): 221–35.

Nunn, Patrick D. 2009. “Responding to the Challenges of Climate Change in the Pacific Islands: Management and Technological Imperatives.” *Climate Research* 40 (December): 211–31.

———. 2013. “The End of the Pacific? Effects of Sea Level Rise on Pacific Island Livelihoods.” *Singapore Journal of Tropical Geography* 34 (2): 143–71. doi:10.1111/sjtg.12021.

Nurse, L., R. McLean, J. Agard, L. Briguglio, V. Duvat, N. Pelesikoti, E. Tompkins, et al. 2014. *Chaper 29. Small Islands. Final Draft*. IPCC WGII AR5. IPCC.

Olmos, Santiago. 2001. “Vulnerability and Adaptation to Climate Change: Concepts, Issues, Assessment Methods”. Climate Change Knowledge Network. http://www.iisd.org/cckn/pdf/va_foundation_final.pdf.

PACE-SD. 2012. “Rapid Assessment 2012: Site Selection Process and Criteria”. USP.

PICCAP, and Fiji Country Team. 2005. “Climate Change: The Fiji Islands Response. Fiji’s First National Communication Under the Framework Convention on Climate Change”. Government of the Fiji Islands.

PIFS. 2012. *Annex 2 - European Union PFD Reassessment Report*. http://www.forumsec.org/pages.cfm/strategic-partnerships-coordination/post-forum-dialogue/.

———. 2014. “CROP.” *Pacific Islands Forum Secretariat*. http://www.forumsec.org/pages.cfm/about-us/crop/.

PNG. 2000. “Papua New Guinea Initial National Communication under the United Nations Framework Convention on Climate Change”. PNG.

Przyluski, Valentin, and Stephane Hallegatte. 2010. *Climate Change Adaptation, Development, and International Financial Support: Lessons from EU Pre-Accession and Solidarity Funds*. SSRN Scholarly Paper ID 1710476. Rochester, NY: Social Science Research Network. http://papers.ssrn.com/abstract=1710476.

Rasmussen, K., W. May, T. Birk, M. Mataki, and O. Mertz. 2011. “Prospects for Climate Change on Three Polynesian Outliers in the Solomon Islands: Exposure, Sensitivity and Adaptive Capacity.” *Geografisk Tidsskrift - Danish Journal of Geography* 111 (1): 43–57.

Republic of Nauru. 1999. “Republic of Nauru Response. 1st National Communication - 1999 under the United Nations Framework Convention on Climate Change.”

Republic of Palau. 2002. “First National Communication to the United Nations Framework Convention on Climate Change”. Republic of Palau.

Russel, L. 2009. “Poverty, Climate Change and Health in Pacific Island Countries.” Menzies Centre for Health Policy.

Samani, Tupeope. 2012a. *USP EU-GCCA Mid Year Progress Report for Year 2, 2012*. Pacific Centre for Environment and Sustainable Development.

———. 2012b. *USP EU-GCCA Annual Progress Report for Year 2, 2012*. Pacific Centre for Environment and Sustainable Development.

———. 2013a. *USP EU-GCCA Mid Year Progress Report 2013*. Pacific Centre for

Environment and Sustainable Development.
———. 2013b. *USP EU-GCCA Annual Report 2013*. Pacific Centre for Environment and Sustainable Development.
Schalatek, Liane, Sam Barnard, Smita Nakhooda, and Alice Caravani. 2013. “Climate Finance Regional Briefing: Asia and Pacific”. Heinrich Böll Stiftung. http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/7915.pdf.
Scheffran, Jürgen, Michael Brzoska, Jasmin Kominek, Michael P. Link, and Janpeter Schilling. 2012. “Climate Change and Violent Conflict.” *Science* 336 (May): 869–71.
Scheffran, Jürgen, Tobias Ide, and Janpeter Schilling. 2014. “Violent Climate or Climate of Violence? Concepts and Relations with Focus on Kenya and Sudan.” *The International Journal of Human Rights* 18 (3): 369–90.
Scheffran, Jürgen, Elina Marmer, and Papa Sow. 2012. “Migration as a Contribution to Resilience and Innovation in Climate Adaptation: Social Networks and Co-Development in Northwest Africa.” *Applied Geography* 33: 119–27.
SIDS Unit, UNDESA. 2013. “Small Island Matters - Vol 1, Issue 7”. UNDESA. http://www.sids2014.org/content/documents/273Dec_2013_SIM_Final.pdf.
Smith, Roy, and Sarah Hemstock. 2011. “An Analysis of the Effectiveness of Funding for Climate Change Adaptation Using Tuvalu as a Case Study.” *The International Journal of Climate Change: Impacts and Responses* 3 (1): 67–78.
SPC. 2011a. “History.” *Secretariat of the Pacific Community*. http://www.spc.int/en/about-spc/history.html.
———. 2011b. “Global Climate Change Alliance: PSIS.” *Secretariat of the Pacific Community*. http://www.spc.int/en/our-work/climate-change/gcca.html.
———. 2013. “Joint EU-SPC Project to Protect Tongatapu Coastline.” *Pacific Islands Report*. http://pidp.eastwestcenter.org/pireport/2013/September/09-04-rl2.htm.
SPREP. 2012. *Pacific Climate Change and Environment Outlook*. Apia, Samoa: Secretariat of the Pacific Regional Environment Programme.
Supa, Casper. 2012. “The Solomon Islands Climate Assistance Programme.” *Global Climate Change Alliance*. http://gcca.eu/national-programmes/pacific/gcca-solomon-islands-climate-assistance-programme.
Targeted News Service. 2013. “Climate Action: Helping the Pacific Fight Against Climate Change.” *Targeted News Service*, August 30.
The Kingdom of Tonga. 2012. “Second National Communication”. The Kingdom of Tonga.
Timor-Leste’s State Secretariat for Environment. 2013. “Executive Summary. Timor-Leste Initial National Communication under the United Nations Framework Convention on Climate Change”. Government of the Democratic Republic of Timor-Leste.
Tompkins, E. L., L. Hurlston, and W. Poortinga. 2009. “Foreignness as a Constraint on Learning: The Impact of Migrants on Disaster Resilience in Small Islands.” *Environmental Hazards* 8 (4): 263–77.
UNDESA. 2014. “Home .:. 2014 Third International Conference on Small Island Developing States.” http://www.sids2014.org/.
UNFCCC. 2014a. “National Communications and Biennial Update Reports from Non-Annex I Parties.” *United Nations Framework Convention on Climate Change*.
———. 2014b. “National Adaptation Programmes of Action (NAPAs).” *United Nations Framework Convention on Climate Change*. https://unfccc.int/national_reports/napa/items/2719.php.
USP. 2004a. “About Us.” *The University of the South Pacific*.

http://eugcca.usp.ac.fj/AboutUs.aspx.
———. 2004b. “Project Components.” *The University of the South Pacific*. http://eugcca.usp.ac.fj/Project.aspx.
———. 2011. “Community-Based Adaptation to Climate Change: A Review of Good Practices in the Pacific”. USP PACE-SD.
———. 2013. “Who We Work with.” *USP - The University of the South Pacific*. http://eugcca.usp.ac.fj/AboutUs/WhoweWorkwith.aspx.
Watson, Charlene, Smita Nakhooda, Alice Caravani, and Liane Schalatek. 2012. “The Practical Challenges of Monitoring Climate Finance: Insights from Climate Funds Update.” http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/7665.pdf.
Weir, Tony, and Dan Orcherton. 2013. “Climate Change Issues on the Pacific Islands: An Overview.” In *Climate-Smart Technologies*, edited by Walter Leal Filho, Franziska Mannke, Romeela Mohee, Veronika Schulte, and Dinesh Surroop, 51–64. Climate Change Management. Springer Berlin Heidelberg. http://link.springer.com/chapter/10.1007/978-3-642-37753-2_4.
White, I., and T. Falkland. 2010. “Management of Freshwater Lenses in Small Pacific Islands.” *Hydrogeology Journal* 18 (1): 227–46.
WMO. 2014. “Region V (South-West Pacific).” *World Meteorological Organisation*. http://www.wmo.int/pages/prog/dra/rap/regionV_more.php.
Yamamoto, Lilian, and Miguel Esteban. 2014. *Atoll Island States and International Law - Climate Change Displacement and Sovereignty*. Heidelberg: Springer Berlin Heidelberg. http://www.springer.com/law/international/book/978-3-642-38185-0.
Zahn, Dr. Ulf, ed. 1996. *Diercke Weltatlas*. Braunschweig: Westermann.

Annex A - Participating Experts in Alphabetical Order

Name	Institution/ Organisation	Position/ Area of Study
Alofa, Penelise	University of South Pacific (USP), GCCA Project	ICC Kiribati
Arudovo, William	USP	ICC Vanuatu
Asitarau, Moses	USP	ICC Solomon Islands
Prof Barnett, Jon	University of Melbourne	Resource Management and Geography
Caravani, Alice	Overseas Development Institutes	Research Officer Climate and Environment
Carruthers, Pasha	Secretariat of the Pacific Community	Climate Change Advisor
Catteau, Thierry	European External Action Service	Attaché Kiribati, Environment
Eckstein, David	Germanwatch	Referent für Klimafinanzierung und Investitionen
Dr Ewing, Jackson J.	Centre for Non-Traditional Security Studies, Nanyang Technological University	Adjunct Research Fellow
Fakaosi, Tevita	USP	ICC Tonga
Hallegatte, Stéphane	World Bank	Senior Economist
Hedger, Merylyn	Overseas Development Institute	Research Associate, Climate and Environment
Junghans, Lisa	Germanwatch e.V.	Consultant for Climate Consequences and Adaptation
Dr Kelman, Ilan	University College London	Reader in Risk, Resilience and Global Health
Dr Killman, Wulf	Gesellschaft für Internationale Zusammenarbeit	Program Director CCCPIR
Koppert, Tessa	University of South Pacific	ICC Timor Leste
Moncada, Stefano	University of Malta, Institute of European Studies	Assistant Lecturer, Climate Change, Development Studies
Nainoca, Winifereti	UNDP	Environment Team Fiji
Nakalevu, Taito	Secretariat of the Pacific Regional Environment Programme	Project Manager PACC
Prof Nunn, Patrick D.	University of New England	Professor and Head, Social Sciences, Climate Change
Schipper, Lisa	Stockholm Environment Institute	Associate
Schulte, Veronika	HAW Hamburg	EU Project Management and Coordination
Dr Singh, Anirudh	USP Fiji	Associate Professor of Physics
Prof Sovacool, Benjamin	Aarhus University	Social Sciences
Taloiburi, Exsley	Pacific Islands Forum Secretariat	Acting Climate Change Climate Advisor
Tualemafua, Tapulolo	USP	ICC Samoa
Wichmann, Vaine	USP	ICC Cook Islands
Yakub, Naushad	USP	ICC Fiji

Annex B - Qualitative Questionnaire A

Questionnaire: The Image of European Support to the Pacific in Climate Change Adaptation

QA1: What is, to your opinion, the motivation for the EU to support climate change adaptation in the world generally, and specifically, in the Pacific Small Developing States? What do you think are the EU's main interests in the region?

QA2: Who benefits how from GCCA (Global Climate Change Alliance) adaptation?

QA3: Which specific project/s do you know and what do you like or not like about them? (Do you know about progress and success of (one of) the projects?)

QA4: Which social networks are created nationally and regionally through GCCA support? With which organisations/ offices is the EU cooperating? Are new cooperations between actors in the region established?

QA5: Are national/ regional actors strengthened or weakened through GCCA support?

QA6: Do you think that GCCA-projects have so far been appropriate? (Where do you see the focus of the work of the GCCA? Does it address the needs of the people in the region to reduce their vulnerability to climate change?)

QA7: How effective have the adaptive measures of the GCCA been so far? (How well did it meet its objectives? Do states become more resilient and gain adaptive capacity?)

QA8: Have they been efficient? (How well inputs such as funds and time were converted into outputs? Does the money actually reach communities?)

QA9: Sustainability: Are the projects of a long-term or short-term nature? (Do you think they will persist after the end of the project period and be continued by local people? Is it help to help themselves?)

Thank you very much for your participation. Before we come to a finish, I would like to know whether from your point of view I missed something essential. I am grateful for your suggestions and advice.

Annex C - Quantitative Questionnaire B

Please rate the following questions on a scale of 1 to 4 !!!

Note: The term Pacific refers to the Small Island Developing States north-east of Australia.

QB1: Do you have a positive or negative impression of the work of the GCCA (Global Climate Change Alliance).

Please enter an x in the table.

1 positive	2 rather positive	3 rather negative	4 negative

QB2: What is your estimate for the importance of the following reasons as motivation of EU support in climate change adaptation?

The last two rows are for miscellaneous criteria you can add.

	1 important	2 rather important	3 rather unimportant	4 unimportant
Prestige				
Resources				
Influence				
Confession of guilt				
Altruism				

QB3: Does the support of the GCCA reach many vulnerable (in terms of climate change) people in the Pacific?

1 vast amount	2 many	3 few	4 none

QB4: Do the projects of the GCCA act in accordance to the needs of the local people in matters of climate change issues?

1 stands for extreme consideration, 4 none of it.

1 extreme	2 moderate	3 few	4 none

QB5: Does the EU cooperate closely with regional organisations and institutions?

1 stands for close cooperation, 4 none of it.

1 close	2 moderate	3 few	4 none

QB6: Does the GCCA support networking of regional actors in the Pacific or does it rather constrain them?

1 stands for a positive influence on networking, 4 negative.

1 positive	2 rather positive	3 rather negative	4 negative

QB7: Does the work of the GCCA strengthen or weaken the political and economic influence of national/ regional actors?

1 strengthening	2 rather strengthening	3 rather weakening	4 weakening

QB8: Do you have the impression that Pacific States become more resilient and gain adaptive capacity or become more vulnerable?

1 resilient	2 rather resilient	3 rather vulnerable	4 vulnerable

QB9: Does the work of the GCCA facilitate independence or does it create dependence?

1 independence	2 rather independence	3 rather dependence	4 dependence

QB10: Do you have the impression that the local population perceives GCCA support as such (Visibility)?

1 yes	2 partially	3 little	4 no

QB11: Do you want to add something?

Annex D – Overview of Answers from QB

		Number	In %
QB1	total	20	100,0%
	positive	13	65,0%
	rather positive	6	30,0%
	rather negative	1	5,0%
	negative	0	0,0%
QB2a	total	24	100,0%
	important	9	37,5%
	rather important	12	50,0%
	rather unimportant	2	8,3%
	unimportant	1	4,2%
QB2b	total	24	100,0%
	important	8	33,3%
	rather important	7	29,2%
	rather unimportant	7	29,2%
	unimportant	2	8,3%
QB2c	total	25	100,0%
	important	9	36,0%
	rather important	12	48,0%
	rather unimportant	3	12,0%
	unimportant	1	4,0%
QB2d	total	21	100,0%
	important	0	0,0%
	rather important	6	28,6%
	rather unimportant	9	42,9%
	unimportant	6	28,6%
QB2e	total	24	100,0%
	important	1	4,2%
	rather important	11	45,8%
	rather unimportant	10	41,7%
	unimportant	2	8,3%
QB3	total	20	100,0%
	vast amount	2	10,0%
	many	8	40,0%
	few	10	50,0%
	none	0	0,0%
QB4	total	19	100,0%
	extremet	6	31,6%
	moderate	11	57,9%
	few	2	10,5%
	none	0	0,0%
QB5	total	23	100,0%
	close	11	47,8%
	moderate	10	43,5%
	few	2	8,7%
	none	0	0,0%

QB6	Total	19	100,0%
	Positive	9	47,4%
	rather positive	9	47,4%
	rather negative	1	5,3%
	negative	0	0,0%
QB7	total	19	100,0%
	strengthening	8	42,1%
	rather strengthening	10	52,6%
	rather weakening	0	0,0%
	weakening	1	5,3%
QB8	total	23	100,0%
	resilient	2	8,7%
	rather resilient	13	56,5%
	rather vulnerable	5	21,7%
	vulnerable	3	13,0%
QB9	total	19	100,0%
	independence	4	21,1%
	rather independence	10	52,6%
	rather dependence	4	21,1%
	dependence	1	5,3%
QB10	total	19	100,0%
	yes	4	21,1%
	partially	10	52,6%
	little	4	21,1%
	no	1	5,3%