

**BRIEF HISTORICAL OVERVIEW OF THE
ROUND TABLE MEETINGS ON CLIMATE CHANGE,
CLIMATE VARIABILITY AND SEA-LEVEL RISE
2000- 2008**

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Introduction / General

The following provides a brief overview of the Round Table meetings and activities on Climate Change, Climate Variability and Sea-Level Rise that commenced in the year 2000 and continued through until 2005 at which time activity in the way of specific regional meetings of the Round Table ceased.

However although the Round Table activity declined there still remained significant levels of engagement at the national and international levels in particular in supporting the Pacific based New York Missions in their engagement with the Commission on Sustainable Development (CSD) and the World Summit on Sustainable Development (WSSD) sessions where climate issues were debated.

YEAR 2000

1st Round-Table Consultation Related to the Pacific Islands Framework for Action on Climate Change, Climate Variability and Sea-Level Rise (PFA)

The Round-Table consultation was held on Friday 7 April 2000 in the Tongareva Hostel, Rarotonga, Cook Islands. The consultation was held as the final part to the Pacific Islands Conference on Climate Change, Climate Variability, and Sea-Level Rise where the substantive part of the meeting was convened from the 3-7 April 2000, also in Rarotonga, Cook Islands.

The purpose of the consultation was to:

- Discuss the establishment of a process for coordination and cooperation amongst stakeholders in terms of finalising the draft PFA; and
- Discuss the establishment of a process for monitoring, evaluation and review of the draft PFA subsequent to finalisation.

The consultation was attended by a number of stakeholders representing governments, non-government organisations, agencies, and regional and international organisations.

YEAR 2002

1st High Level Adaptation

Consultation held in Nadi, Fiji Islands from 14-16 May 2002 was attended by Ministers and Senior Officials of the Finance, Planning, and Environment Ministries of the Pacific Island Countries, as well as representatives of donor organisations.

The meeting also noted that:

- Climate change, climate variability and sea level rise are inevitable (regardless of the success of international negotiations to reduce greenhouse gas emissions), and therefore Pacific Island Countries have no choice but to adapt to the changes;
- Adapting to current day vulnerabilities and managing present risks will be an important strategy to help Pacific Island Countries adapt to climate change, climate variability and sea-level rise;
- Global funds for adaptation financing may be limited, and may take time to become available. Furthermore, Pacific Islands may need to compete for resources with other highly vulnerable regions including Africa, South Asia, and the Caribbean;
- The rules regarding adaptation investments to be funded out of the global funds are still unclear and may not favour no-regrets adaptation.

2nd Round-Table Meeting on Climate Change, Climate Variability and Sea-Level Rise.

Part1

Tanoa Hotel, Nadi, Fiji, 17-18 May 2002

The meeting followed the Revised Agenda as Ms LA Buliruarua (START/PACE-SD) was in charge of the logistical arrangements for the meeting at Nadi while Dr. K. Koshy, Prof. P. Nunn and Dr M Kumar chaired various sessions during the two days.

In his introductory statement, the SPREP Director, Mr. Tamari'i Tutangata noted the significance of the Round-Table in enabling agencies to provide updates of the climate related activities undertaken in the region, avoiding duplication of activities, identifying gaps in research and maximising complementarity. The USP Vice Chancellor, Mr. Savenaca Siwatibau officially opened the Round-Table stating that Climate Change was not only an environmental problem but it is also a pivotal social and political issue for Pacific. He said that there must be concerted efforts to mainstream climate change and adaptation at all levels and by all stakeholders to ensure efficiency and to avoid unnecessary duplication.

Part II

Rarotonga, Cook Islands, 13 July 2002

In the lead up to this meeting, PACE Secretariat co-ordinated the all-important task of getting the project matrix filled up. The meeting was chaired by Dr. K. Koshy, with the following organisations represented: SOPAC, World Bank, ADB, UNDP, Cook Islands Environment Service, WMO, WWF-Pacific, IGCI and SPREP.

The Chair provided an overview of the first Meeting held at Nadi, 17-18 May 2002. It was reported that more information on various projects currently being carried out in the region was needed to decide on gap areas and to identify future project possibilities. The Nadi meeting also decided that the revised ToR for the Round-Table should be recirculated for any further comments before it is finally approved. It was mainly for these reasons, the chair said, the decision was made at Nadi to continue the meeting at Rarotonga.

A copy of the ToR or as titled Guidelines (DRAFT (17th May 2002)) are attached as ANNEX 1 and would appear that these were the agreed guidelines at the time. A further more detailed document circa 2003 is attached as ANNEX 2.

YEAR 2003

2nd High Level Adaptation Consultation

The Second High Level Adaptation Consultation was held on 8-9 May 2003 in the Outrigger Hotel in Sigatoka, Fiji Islands. It was attended by 16 Pacific Island countries, representatives of Council of Regional Organisations of the Pacific (CROP) agencies, donor organizations and non - governmental organizations. Ms Sofia Bettencourt, Sr. Natural Resource Economist, World Bank Office, Sydney, Australia presented the outcomes of the 2nd High Level Adaptation Consultation.

3rd Climate Change Round Table Meeting of the Pacific Island's Framework for Action on Climate Change, Climate Variability and Sea Level Rise.

The meeting was convened at the Outrigger Hotel in Sigatoka, Fiji Islands on 10 May 2003 following the 2nd High Level Adaptation Consultation held from the 8-9 May 2003, which was held at the same venue. This Round-Table was coordinated and hosted by SOPAC.

Year 2004

Ad-Hoc Working Group on Climate Change

At the 34th Forum in Auckland, New Zealand, August 2003, Leaders agreed to establish an Ad-Hoc Working Group on Climate Change. The Ad-Hoc Working Group will apply the same working modalities as has been practiced by the "Pacific Climate Change Roundtable." Its mandate will be to review the "*Regional Framework on Climate Change, Climate Variability and Sea-Level Rise*"¹ and forward its recommendations to the 2004 South Pacific Regional Environment Program² (SPREP) meeting for its consideration.

The Forum Secretariat, in consultation with SPREP, the University of the South Pacific, and the South Pacific Applied Geoscience Commission³, held the first meeting of the Ad-Hoc Working Group at 9.00am on Monday 14 June 2004 at the Forum Secretariat Conference Room in Suva, Fiji. SPREP agreed to coordinate a study to review the Climate Change Framework. This was made available to all participants and formed the basis for discussions at the above meeting.

¹ Adopted at the Pacific Islands Conference on Climate Change, Climate Variability and Sea-Level Rise, 3-7 April 2000 in Rarotonga, Cook Islands.

² SPREP – now the Secretariat of the Pacific Environmental

³ SOPAC – now the Secretariat of the Pacific Islands Applied Geoscience Commission

Matrix of Projects

As part of the process of better understanding the various activities and interventions that were being made throughout the region in respect to addressing climate change issues an earlier listing of projects and activities was turned into an access database with search and query functions. This is still available although would obviously require updating to include more current events and activities.

Matrix of Projects

Task Profile

Pacific Islands Energy Policies and Strategic Action Planning Project (PIEPSAP)

Details* Output* Background* Equipment* Work Plan* Outcomes* Review Information Clients/Funding Personnel Buc

Title: Pacific Islands Energy Policies and Strategic Action Planning Project (PIEPSAP)

Country: All SOPAC Member Countries

Task: PIT 2004.004

Work Program Year: 2004

Sopac Unit: Energy Unit

Modifier: Rupeni Paul

Status:

Proposed	01-Feb-04
Approved	01-Feb-04
Started	01-Feb-04
Deferred	
Cancelled	
Completed	

Proposed WP Year: 2004

Objectives

PIEPSAP aims to improve the capacity of the Pacific Island Countries to develop practical national energy policies, and a strategic action plans to implement the policies. Towards the end of the project, it is expected that a framework of national energy policies, plans and practical mechanisms will be in place within each participating country. The policies and action plans will influence national efforts toward achieving available, reliable, affordable, and environmentally sound energy for the sustainable development for all Pacific islanders.

Fields underlined are required. Tabs with * contain required fields.

Record: 45

SOPAC

Meeting on Climate Change and Adaptation (Papua New Guinea)

Specific details not able to be sourced for this meeting.

CSD 14 & 15

At the CSD 14 & 15, the outcomes from the Pacific Energy Ministers Meeting, 2007 Declaration and Communiqué, were also tabled by the Pacific Island Forum (PIF) New York Missions. They were further incorporated into a side event convened by the Pacific SIDS and refereed to repeatedly in statements made by PIF Delegations during the CSD 15. At the CSD meeting, the Government of Italy and the Governments of the Pacific Small Island States (SIDS), launched a cooperative programme and partnership to address on the key global challenges of the next decade, namely, adaptation to climate change, protection from the vulnerability to extreme climate variability and mitigation of harmful emissions generated by energy utilization.

DRAFT (17th May 2002)
**GUIDELINES FOR THE ROUND-TABLE OF THE PACIFIC ISLANDS
FRAMEWORK FOR ACTION ON CLIMATE CHANGE, CLIMATE
VARIABILITY, AND SEA-LEVEL RISE**

Introduction

This paper provides a brief summary of the background to the establishment of the Round Table - Pacific Islands Framework for Action on Climate Change, Climate Variability, and Sea-Level Rise. In addition the paper outlines the strategy and objectives of the Round Table including working arrangements for its meetings.

Background

The establishment of the Round-Table and Process was primarily to ensure a coordinated and cooperative approach by Regional and International Organisations and Agencies as they assist Pacific Island countries in undertaking activities and efforts as provided for by the Pacific Islands Framework for Action on Climate Change, Climate Variability, and Sea-Level Rise (Framework). The Round-Table process was endorsed by SPREP Ministers (during October 2000 and the Pacific Forum Leaders, November 2000) initially as a means of monitoring and coordinating the activities of donors and agencies in implementing the Pacific Islands Framework for Action on Climate Change, Climate Variability, and Sea-Level Rise. The first meeting of the Round-Table held in Rarotonga, Cook Islands, during early April 2000 established the general process. This process has now been further established and is elaborated in the following document.

1. Strategy

To ensure a coordinated and cooperative approach to Climate Change, Climate Variability, and Sea-Level Rise within Pacific.

2. Objectives

The following key objectives apply to the Round-Table and Process:

- Within the Framework, identify potential activities and critical gaps, that will assist Pacific Island countries in implementation;
- Strengthen coordination and cooperation by regional and international organizations and agencies with regard to implementing the Framework;
- Identify how and by whom components of the Framework will be implemented; and
- Develop a transparent process to monitor and measure progress in implementing the Framework and Objectives.

3. Key Functions

- Provide information and data to each meeting, that will enable an assessment of activities, and efforts on implementation of the Framework;

- At each meeting deliberate on each members activities to ensure; complimentarity of efforts, as well as consider joint efforts and activities, as appropriate; and
- Shall at each meeting where new initiatives are introduced, deliberate on how, and by whom components of the Framework will be implemented.

4. Membership

- Membership of the Round-Table is open to all National, Regional and International Organisations at all levels. In particular, Regional and International Organisations and Agencies who are implementing components of the Regional Framework;
- Membership of the Round-Table is on a voluntary basis;
- Participation at each Round-Table Meeting is self-funded;
- The Round-Table shall meet annually, unless specifically requested otherwise by a member;
- Any member may offer to host a Round-Table Meeting;
- Any member who offers to host the Round-Table Meeting shall cover the costs of venue and refreshments; and
- Each member shall provide an update of their activities undertaken in the region to each meeting of the Round-Table.

5. Outputs

- Each meeting of the Round-Table shall produce a matrix of regional activities, updated in subsequent meetings;
- Each meeting of the Round-Table will record specific areas, activities, or projects from within the Regional Framework, that will be undertaken individually or jointly by members as new initiatives, with a view to further reporting on progress in subsequent meetings; and
- Each meeting of the Round-Table will also record any offer to host subsequent meetings and their venue.

DRAFT

**PACIFIC ISLAND'S FRAMEWORK FOR ACTION
ON
CLIMATE CHANGE, CLIMATE VARIABILITY AND SEA LEVEL
RISE**

Preamble

Pacific Island countries have long been concerned about the serious impacts of climate change, short-term climate variability in weather patterns and sea level rise in the region. It is clear that they are extremely vulnerable to variations in climate and sea level rise, and will be among the first to suffer the impacts of climate change and among the first to be forced to adapt or abandon or relocate from their environment.

Over the last decade, Pacific Island countries have continually urged the international community to reduce greenhouse gas emissions. They have conveyed their concerns over impacts of a changing climate system to all States and have given their strong support to a broad range of international agreements, such as, Agenda 21, the Barbados Programme of Action (BPoA) and its recent review, and the United Nations Framework Convention on Climate Change (UNFCCC) and Kyoto Protocol. Pacific island countries, however, remain seriously concerned that global emissions of greenhouse gases continue to grow. While the Kyoto Protocol is a first step towards addressing these emission trends, the targets under this Protocol are inadequate to fully meet the objectives of the UNFCCC.

Given their vulnerability, the Pacific Island countries need to improve their understanding of and strengthen their capacities to respond to climate change, climate variability and sea level rise. This has been reflected in numerous statements by the region's leaders and continues to be a priority for Pacific Island countries at local, national, regional and international levels.

In response, support has been received from the international community at national and regional levels to assist with programmes of research, technical studies, capacity building, planning and the development of policy relevant advice. Countries have also committed significant resources of their own to address problems of climate change, variability, and sea-level rise.

The Framework that follows builds upon this investment. It outlines urgent action required within this region to enable Pacific island countries understand and respond to climate change, climate variability and sea level rise. It represents the national interests and priorities of Pacific Island countries and has been developed through broad consultation between Pacific Island countries, their development partners, regional and international organisations, the scientific community, and non-governmental organisations (NGOs).

Basis for Action

Internationally, the Barbados Programme of Action (BPoA) recognised the special situation of Small Island Developing States (SIDS) and their vulnerability to global climate change, climate variability and sea-level rise. The BPoA provides for international support to SIDS across a number of sectors to assist them in adapting to climate change. The 22nd Special Session of the United Nations General Assembly reaffirmed the commitment of the international community to the BPoA and sought to accelerate programs of assistance.

Pacific island countries are continuing to experience the impacts of a changing and variable climate system. Many of these are consistent with the anticipated impacts of global climate change. This is supported by a growing body of quantitative and qualitative information and strong anecdotal evidence from across the Pacific. Collaborative efforts among regional and international scientific and technical organisations are providing valuable information that will be used to better predict variability and establish the magnitude of climate change and its impacts in this region more conclusively.

The balance of evidence suggests the need for [precautionary and “no/low regrets”] action to be taken at [national, regional and international levels] [at all levels]. It is in this context that Pacific island policymakers require answers to critical questions related to their vulnerability and their sustainable development – a future that is intimately linked to the continuum of climate from weather forecasting, short term variability and longer term climate change. This will require stronger linkages between science and policy and a well co-ordinated effort among all stakeholders.

Some capacity has been built in this region over the last decade that will facilitate this effort. This is reflected in the considerable effort by Pacific Island countries in recent years to prepare national technical studies and the development of policy relevant guidance for key sectors. Significant challenges for policy development have been identified in relation to a range of impacts, including:

- The loss of revenue across productive sectors
- Agricultural production;
- The shifting of fishing fish grounds and impact on total stocks;
- Bleaching and death of coral reefs;
- Damage to infrastructure and accelerated coastal erosion;
- Availability and quality of water resources for local communities and tourism;
- The need for economic diversification to improve resilience;
- Social and cultural disruption, including, displacement and adverse effects on traditional systems; and
- Human health.

There is a need to focus on the continued improvement of both the technical studies and policy development as science-based understanding increases, and their inter-relationships and complexities become clearer. Effort should not focus solely on studies, but rather the end-point or implementation of the developed policies and

plans, and on identifying the ways and means to ensuring that these plans are harmonized and mainstreamed with national development plans.

Understanding at national and local levels will be critical as will the development of appropriate methods and technology, the use and integration of traditional knowledge and the communication of science in ways that can be understood and used by Pacific island policy makers and their constituencies. This includes the need to link scientific analysis to downstream social and economic effects.

This has been demonstrated recently through extreme weather and climate events and changes in sea level, state and temperature. For example, in Fiji, drought wiped out some two-thirds of the newly planted sugar crop in 1998, the overall economic impact was equivalent to 3% of GDP. Tonga's squash crop, which produces about half that country's exports by value, was more than halved. In Papua New Guinea, Australia spent more than \$A30 million delivering food aid to people in isolated areas in the highlands and low-lying islands, many of whom were close to starvation. The drought substantially reduced Papua New Guinea's important coffee harvest. In the Federated States of Micronesia, crops and water supply were severely affected and national disaster was declared, where food aid and water was delivered to all the affected areas. In the Marshall Islands, the droughts caused a severe water shortage that limited households to seven hours of tap water every 14 days. As a result, the United States brought in desalinization plants to provide water for the population. In Palau, there were severe impacts with a loss of 30% of coral reefs and drought led to the major loss of taro affecting 30% of the population. In Samoa, fires sparked by the unusually dry conditions destroyed large areas of forest on the island of Savai'i. Tuvalu suffered 3 cyclones during this period resulting in the loss of land, inundation of taro pits, destruction of houses, and contamination of freshwater supplies. La Nina events have resulted in a severe drought in both Kiribati and Tuvalu.

Overview of Science and Policy

At the international level, the United Nations Intergovernmental Panel on Climate Change (IPCC), concluded in 1995 that, "the balance of evidence suggests there is a discernable human influence on global climate"" Pacific Islands countries had worked with the Intergovernmental Panel on Climate Change (IPCC) on the Second Assessment Report on the Regional Assessments, as well as made important contributions to the Third Assessment Report. The IPCC/SAR concluded that global surface temperatures increased by 0.4 – 0.6°C during the 20th century and would increase by 1 to 3.5°C between 1990 and 2100. The SAR also concluded that between 1990 and 2100 global averaged sea level would rise by between 0.13 and 0.94m. It also noted more El Nino's occurred after 1975. With regard to policy, Pacific Island countries as members of the Alliance of Small Island States (AOSIS) have actively participated and made contributions in the negotiations processes on the UNFCCC and the Kyoto Protocol.

Regionally, there have been numerous studies and conferences on climate change and sea-level rise and climate variability. The Conference noted a number of significant scientific findings of particular importance to the region. These included:

- impacts of climate change and climate variability are possibly the most critical environment issue facing PICs;
- regional surface temperatures have increased by 0.5 -0.8 C during the 20th century, with less warming in the north, and largest warming in the south west of the region. Since the mid 1970s it has become wetter in the northeast, and drier in the south west;
- results for the region from global climate modelling indicate future warming rates similar to the projected global rate. Rainfall changes are less certain but the majority of models show increased rainfall in the northeast of the region. There is some results indicating more frequent El Nino conditions and more intense tropical cyclones;
- Observations indicate a rise in global sea-level of 1 to 2 mm per year over the 20th century. Available evidence suggests that the rate of sea-level rise in the Pacific region is similar to the global average
- there is as yet no evidence that the average observed sea level rise in the region is different to the global average;
- movements of land levels can be of the same order of magnitude as that of sea level change and can vary amongst individual islands complicating local effects of sea level changes;
- Climate and Sea Level Variability are linked with the well documented ENSO phenomenon, but there is now new emerging evidence of an ocean basin wide Interdecadal Pacific Oscillation (IPO) which contributes to decadal climate variability;
- spaceborne measurements are critical, to combine with long term tide gauges, for the determining and predicting of absolute and relative sea level rise (seasonal, ENSO and secular) along with the associated land motion in the Pacific Region;
- although climate and sea level variations have the most immediate and direct on impact on atoll countries, they also can have profound impacts on virtually all Pacific Island countries in areas such as health, agricultural, fisheries, coastal ecosystems, and damage to infrastructure;
- recent observation indicate that the upper 1000m of the Pacific Ocean is warming, resulting in thermal expansion equivalent to a rate of about 1mm per year sea level rise;
- droughts, tropical cyclones and other extreme climate events cause large impacts on PICs and these are strongly influenced by ENSO event which can be forecasted;
- absolutely vital to the continued progress in understanding and adapting to climate and sea level change and variability is the maintenance and enhancement of

atmospheric oceanographic and geodetic monitoring systems to ensure climate records reach agreed international standards.

Climate and sea level change and variability, being a global concern, now have a well-developed international support infrastructure which ensures international planning and co-ordination of scientific programs and exchange of scientific information and developments. Of particular relevance are the work of a number of agencies including the World Meteorological Organisation, the Inter-governmental Oceanographic Commission of UNESCO's, UNEP and ICSU, FAO, and all CROP agencies. These organisations have put in place programs including the World Climate Program, Integrated Global Observing Strategy (IGOS), the Global Climate, Ocean and Terrestrial Observing System, (GCOS, GOOS AND GTOS). The South Pacific is well served in these activities through regional counterparts in SPREP, the Forum Secretariat, SOPAC, SPC, USP, University of Guam, FFA, PIDP, UPNG, the WMO sub Regional Office in Apia and the IOC office in Perth.

At a national level, considerable efforts have been made to increase the understanding of vulnerability and adaptation, to quantify GHG emissions, consider mitigation responses, and maintain the integrity of meteorological observations.

Goal

To catalyse action and strengthen partnerships and response at all levels to enable the Pacific Island's region understand and respond to climate change, climate variability and sea level rise.

Priorities for action

The Pacific Island Conference on Climate Change, Climate Variability and Sea level Rise, Rarotonga, 3-7 April 2000, has identified a number of priorities for action under the following major headings. Capacity building is common throughout the priorities identified and is seen as critical to the sustainability of policies and programmes that will enable Pacific island countries understand and respond to climate change, climate variability and sea level rise.

1. Capacity building

In considering actions to be taken under each of the general headings outlined in this section, the Conference recognised the urgent need for further capacity building in order to enable Pacific Island countries to contribute effectively to scientific research relating to climate change, climate variability and sea level rise, conveying that information effectively to policy makers and the public to inform decision making; and implementing programmes of action at the national, regional and international levels.

2. Understanding the climate system and sea level rise

Understanding the climate system is fundamental to sustainable development in this region. To inform local and regional responses to climate change, climate variability

and sea level rise, it will be essential to strengthen the analytical capacity of relevant national and regional institutions.

- Strengthen the capacity of National Meteorological Services to provide the necessary data and information needed for daily weather forecasting, seasonal predictions and climate change.
 - Specific actions will be identified by the Pacific Meteorological Services Needs Analysis undertaken by SPREP, WMO, the Bureau of Meteorology of Australia, MetService NZ Ltd, Meteo France, US NOAA National Weather Service, Fiji Meteorological Service and all SPREP NMSs
- Reduction of the uncertainties in climate prediction and scenarios with an increased focus on regional variability and changes, particularly extreme weather and climate events. Specific action includes:
 - prediction on all the scales, seasonal, inter-annual, decadal, and longer;
 - detection and distribution of anthropogenic climate change in the region;
 - enhancement of capacity for climate observation and monitoring;
 - better utilisation of in situ measurements and new instrumentation systems such as satellites and ARGO floats;
 - better understanding of extreme events, in particular, the frequency and severity of tropical cyclones, occurrences of ENSO events, and trends in heavy rainfall;
 - coupling of observational studies with GCM and ocean forecasting systems;
 - retrieving data in paper records into computer form;
 - free and unrestricted use and access to data;
 - restoration of historical climate monitoring networks;
 - improve understanding of the Inter-tropical Convergence Zone, South Pacific Convergence Zone, and Inter-decadal Pacific Oscillation,
 - Ongoing support for meteorological instrumentation and national level monitoring
 - Joint projects between international organisations and research institutions and Pacific island countries.
 - Address the land or tectonic movement, monitoring using GPS technology
 - Joint projects between international research organisations, local research organisations and educational institutes.
 - Emphasis on improvement in telecommunications capacity across the region.
 - Training local people in understanding and analysing data from various monitoring projects.
 - Mapping (topographic/hydrographic etc) of atolls in PICs. Proper scale to capture SLR, using basing mapping surveying techniques.
 - Improvement of educational program in Pacific region. Capacity building in terms of scholarships etc.

Sea level rise and sea level variability are of major concern to Pacific Island countries. The maintenance of existing observational networks and the strategic placement of future facilities, improved techniques for detecting relative and absolute sea level rise and improved models will greatly assist with the formulation response measures. Specific action required includes:

- Continuous long and short term monitoring of sea level at a local spatial scale;
- support for the maintenance of meteorological equipment to ensure ongoing reliable data at the national level;
- Continuous monitoring of the impacts of sea level rise and storm surges;
- Local spatial, discrimination utilizing satellite technology;
- Calibration of satellite/remote sensing with in-situ monitoring;
- Establishment of a regional sea level database in the Pacific;
- Utilisation of satellite and altimeter data;
- Foster partnerships with big over-arching International Science Programmes e.g. CLIVAR/GOOS/GCOS.

3. Impacts and vulnerability

Pacific island countries are continuing to experience the impacts of a changing and variable climate system and related sea level rise and variability. Many of these are consistent with the anticipated impacts of global climate change. This is supported by a growing body of qualitative information and strong anecdotal evidence from across the Pacific. Specific action includes:

- Strengthen and enhance the capacity of PIC and their respective national institutions and regional organisations to undertake the assessments of impacts related to climate change & SLR. In addition collaboration between the PIC and regional organisations with regard to climate change, climate variability and sea level rise need to be further strengthened and maintained.
- Improve forecasting and warning for droughts, floods and tropical cyclones particularly related to the ENSO phenomenon. Further emphasis is required to improve our understanding of the natural variability of climate in the region.
- Appropriate training of national experts in the science of climate change and sea-level rise should be undertaken in a sustainable manner. The training needs to be strengthened by the provision of appropriate level of resources at a country level and in-country training.
- Further research is required to link historical and anecdotal information as evidenced by many communities in the region to climate change, variability and sea-level rise. Climate models used at present are probably not appropriate for understanding local level impacts and therefore relevant local data is particularly critical for enhancing the understanding of impacts.
- Enhanced coordination amongst all regional and international agencies to disseminate information on impacts of climate change, climate variability and sea level rise.

- Develop new frameworks for analysing impacts and vulnerability that integrate science and local needs, in particular those that will assist with the characterization of vulnerability to climate change, climate variability and sea-level rise on Pacific island communities.
- Increased use of tools to assess economic and social impacts of climate change, climate variability and sea level rise.
- Promote mechanisms to encourage sustained interaction between scientists and policymakers at all levels.

4. Response Measures

In the last decade, a number of response policies have been identified and in many cases implemented in the region to mitigate and adapt to climate change, climate variability and sea level rise. These policies were identified through a series of international, regional and national conferences and consultations. A number of responses, under specific sectors, which are of particular importance to the region, have been identified. These include but are not limited to:

Coastal Zones

- Formulate and implement Integrated Coastal Zone Management (ICZM)
- Formulate and implement coastal zone protection plans
- Conduct inventory and mapping of coastal and near shore resources and processes (e.g. beaches, soils, bio-diversity), including baseline inventories against changes which can be monitored and coordinated

Vulnerable High-risks areas

- Implement land use zoning to limit development in highly risk vulnerable zones and areas

Water Resources

- Assessment of freshwater resources.
- Formulate ground water demand and assessment programs, particularly for smaller outer islands and atolls
- Assess salt water intrusion
- Implement water shed management
- Improve rainwater catchment systems
- Implement water conservation programs including public awareness and education

Marine Ecosystems

- Conduct national coral reef surveys to investigate the health of coral reefs
- Promote sustainable harvesting of in-shore fisheries

National Disaster and Emergency Management Units

- Formulate and improve emergency plans, including external emergency response agreements with appropriate developmental partners
- Enhance the capacity of National Disaster Management Units (DMU) in the region to respond to extreme weather and climate events

Weather and Climate Forecasting and Predictions

- Strengthen the capacity of National Meteorological Services to provide early, accurate, and timely forecasts and warnings, including seasonal forecasting for appropriate planning responses

- Develop and design appropriate adaptation technologies to protect Pacific Island countries' from storm surges and flooding

Health Issues

- Develop disease control and health protection strategies (e.g. vector control programs, environmental health, sanitation and water supply)

Relocation

- Formulate relocation plans for highly vulnerable areas

Institutional Strengthening

- Strengthen existing institutions and programs in the region, where needed, to collect data and provide seasonal forecasts and early warnings of weather and climatic events
- Formulate appropriate legislation and regulations to address causes and impacts to climate change, climate variability and sea level rise effects
- Strengthen Pacific Island Countries input into international conferences and meetings such as the UNFCCC and its subsidiary bodies (SBSTA, SBI) and the Kyoto Protocol, to ensure that Policies and Measures (PAMS) implemented in countries outside the region do not negatively impact on Pacific Island Countries.

Forests

- Fire prevention measures
- Strengthen forests protection and reforestation programs at all levels
- Coastal and mangrove protection and replanting programs
- Improving tree species to resist pests and cyclones
- Improve plant genetic make-up to withstand climate change variabilities such as cyclones, diseases, heat etc.
- Establish seed banks to store seeds in times of extreme events.

Pollution and Waste Disposal

- Pollution and waste disposal programmes to minimise the damage to marine ecosystems and water resources

Energy

- Develop and implement climate friendly new, renewable energy programs
- Improve traditional methods of cooking
- Enhance programmes at the national level to promote energy conservation, efficiency including demand side management

Infrastructure

- Environmental Impact Assessments for new infrastructure development be carried out
- Ensure that designs for new infrastructure takes into account climate change and climate variability

- Protection measures for existing infrastructure needs to be developed/implemented.

5. Linkages between Science and Policy

Improving the linkages between science and policy will be essential for all efforts to improve the region's understanding and the effectiveness of responses to climate change, climate variability and sea level rise. Areas where specific action is required include the following:

Science interpretation

- Improve interpretation and explanation of scientific information for local scientists, policy makers and public
- Increase country-driven identification of research priorities

Awareness raising

- Promote programs to raise the awareness of, and mobilization of stakeholders and interest groups with respect climate change, climate variability and sea-level rise

Data and information dissemination

- Promote free access and use of data and information across all relevant institutions

Education and training

- Design education and training programmes for all levels
- Training of scientists in space-based and ocean based technologies.
- Encourage students into science and relevant policy areas

Policy development

- Development and main-streaming of cross-sectoral (integrated) national policies and plans based on sound information that address issues related to climate change, climate variability and sea-level rise.
- Encourage coordination among all stakeholders
- Identification of critical thresholds and prioritization of risks, encompassing a dialogue process between stakeholders and scientists.

Institutional capacity

- Establish, consolidate, or strengthen the roles of existing country teams and institutions dealing with climate change, climate variability and sea level rise.

Targeted research and development

- Identification and implementation of targeted research and development activities, as identified by PICs, that enhances the capacity of Pacific island government, and relevant national and regional organizations and institutions to understand and respond to climate change and sea-level rise.

Means of Implementation

Over the past three years, in Pacific Island countries, the Climate Change Country Team approach has worked successfully in enabling coordination and contribution to national priority setting. The multi-sectoral composition of the respective teams has enabled each relevant government ministry or department to contribute to the undertaking of technical studies and sector policy development in the context of climate change, climate variability, and sea-level rise. In addition, access to information and data required for technical studies and held in different archives throughout government agencies has been well coordinated through the Country Teams. The multi-sectoral nature of the teams and sub-committees has also facilitated the development of climate policies in relation to key sectors impacted by a changing climate system. This mechanism may require strengthening and institutionalisation. There is also scope for further cooperation with SIDS experts in other regions, as well as with technical and financial support available through the United Nations systems.

The establishment, strengthening and use of information networks at national levels, such as a clearing-house mechanism within a government ministry, a climate website, and other forms of both hard copy and electronic archiving will assist governments in disseminating their data and information. At both regional and international levels those dissemination mechanisms exist, such as SIDSNet and USPNet, and Pacific Island countries and their Partners need to be encouraged to utilise these networks to exchange and share information. SIDSNet in particular should be strengthened in accordance with relevant UN decisions, and donor support should be encouraged. With such strengthening, SIDSNet will be able to greatly improve information flow between and among the SIDS regions, and with donor agencies. Co-ordination through the UN-DESA SIDS Unit may also be of assistance in the longer term.

All efforts to undertake national technical studies and sector policy development in the context of climate change, climate variability, and sea-level rise must be consistent with each respective country's national development planning processes. Mainstreaming those sector policies into the national development processes can be undertaken with the assistance of the Climate Change Country Teams and through the National Implementation Strategy process both initiated under the Pacific Islands Climate Change Assistance Programme (PICCAP).

Support from regional and international institutions

Pacific Island Countries received significant support from a wide range of regional and international institutions. These have included a number of development partners, such as, Australia, New Zealand, France, the United States, Denmark, Japan, and, SPREP, SOPAC, Forum Secretariat, Secretariat for the Pacific Community (SPC), University of the South Pacific (USP), University of Papua New Guinea (UPNG), University of Hawaii, Pacific Islands Development Program (PIDP), World Meteorological Organization (WMO), UNEP, WHO, UNESCO, FAO, UNDP, IOC, IRD, and particularly through the UNDP/GEF funded Pacific Islands Climate Change Assistance Program (PICCAP).

Financing implementation

The Conference recognised that for the effective implementation of the action programmes, it will be necessary for national governments to commit their own financial and other resources.

At the same time, given the magnitude and the global nature of the issues involved, activities required to be undertaken, the resources of Pacific Island countries alone would be insufficient. Consultations will be undertaken both bilaterally and through appropriate institutions to establish partnerships for the purpose of financing and implementing the actions to be undertaken.

The first priority in this regard will be to secure funds between PICCAP and its next phase. These funds will be used by the country teams for particularly important tasks as identified by the individual countries, within the overall regional process. A second priority will be to develop a proposal for the next stage of PICCAP. A further priority will be to develop the international dimension of the work. Information flow to the international community and responses to needs arising could be facilitated through the United Nations System, in particular UN-DESA, UNDP, UNEP, WMO and GEF, and CROP agencies.

Monitoring and review

Effective monitoring and review will be essential to the success of this framework. This will, wherever possible, utilise existing reporting mechanisms.

Annual monitoring by Countries

The Framework provides a specific focus on Pacific Island countries' priorities and needs and how to address these in a coordinated and complimentary manner. Each Pacific Island country, in endorsing this framework, also agrees that on an annual basis utilising existing reporting mechanisms, where appropriate, will assist with the monitoring and review of the framework, established at the Conference, through the Round-Table process.

Annual monitoring by donor/agency/organisation

The Framework provides for specific focus of activities to enable Pacific Island countries to implement the priorities for action. The framework outlines the approach as coordinated and complimentary. In this respect each Stakeholder as a member of the Round-Table agrees that it shall provide to the Round-Table a brief summary of activities implemented, including costs as outlined in the Framework, or potential activities, and where those activities compliment the Framework.

Framework Review Every 4 Years

The Framework shall be reviewed after four years, taking into account the annual monitoring processes, Round-Table meetings, and reports related to implementation of the Framework. The Monitoring and Review of the framework and the Round-

Table process was established at the Pacific Island Conference on Climate Change, Climate Variability and Sea Level Rise, held in Rarotonga, Cook Islands.