



PACIFIC ADAPTATION TO CLIMATE CHANGE
SOLOMON ISLANDS

REPORT OF IN-COUNTRY CONSULTATIONS

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I. INTRODUCTION

1.1 The need for adaptation to climate change

1. Small island developing States (SIDS) are highly vulnerable to climate change and sea level rise owing partly to their small land masses surrounded by ocean, and their location in regions prone to natural disasters. SIDS are often characterized by having relatively large populations for the area they occupy with high growth rates and densities; poorly developed infrastructure and limited natural, human and economic resources, and their high dependence on marine resources for their livelihood needs. Most of their economies are reliant on a limited resource base and are vulnerable to external forces, such as changing terms of trade, trade liberalization, and migration flows. Adaptive capacity to climate change is generally low.

2. In the Pacific region where the Solomon Islands (Long 175° East and 178° West and lat. 15° and 22° S) are situated, the climates are influenced by a number of factors such as trade wind regimes, the paired Hadley cells and Walker circulation, seasonally varying convergence zones such as the South Pacific Convergence Zone (SPCZ), semi-permanent subtropical high-pressure belts, and zonal westerlies to the south, with the El Niño Southern Oscillation (ENSO) as the dominant mode of year to year variability (Fitzharris, 2001; Folland *et al.*, 2002; Griffiths *et al.*, 2003). The Madden-Julian Oscillation (MJO) also is a major mode of variability of the tropical atmosphere-ocean system of the Pacific on times scales of 30 to 70 days (Revell, 2004), while the leading mode with decadal time-scale is the Interdecadal Pacific Oscillation (IPO) (Salinger *et al.*, 2001). A number of studies suggest the influence of global warming could be a major factor in accentuating the current climate regimes and the changes from normal that come with ENSO events (Hay *et al.*, 2003; Folland *et al.*, 2003).

3. Recent studies in the southern Pacific region show that the annual and seasonal ocean surface and island air temperatures have increased by 0.6 to 1.0°C since 1910 throughout a large part of the South Pacific, southwest of the South Pacific Convergence Zone (SPCZ) where as decadal increases of 0.3 to 0.5°C in annual temperatures are only widely seen since the 1970, preceded by some cooling after the 1940, which is the beginning of the record, to the northeast of the SPCZ (Salinger, 2001; Folland *et al.*, 2003).

4. Analyses of trends in extreme daily rainfall and temperature across the South Pacific for the period 1961 to 2003 show significant increases were detected in the annual number of hot days and warm nights, with significant decreases in the annual number of cool days and cold nights, particularly in years after the onset of El Niño, with extreme rainfall trends generally less spatially coherent than were those of extreme temperature (Manton *et al.*, 2001; Griffiths *et al.*, 2003). Variations in tropical cyclones, hurricanes, typhoons in all small islands' regions are dominated by ENSO and decadal variability which result in a redistribution of tropical storms and their tracks, so that increases in one basin are often compensated by decreases in other basins. For instance, during an El Niño event, the incidence of tropical storms typically decreases in the far western Pacific and the Australian regions, but increases in the central and eastern Pacific while during La Nina the trend reverses. The numbers and proportion of hurricanes reaching category 4 and 5 globally have

increased since 1970, while total number of cyclones and cyclone days decreased slightly in most basins which is consistent with the trends observed in the Pacific islands region. Additionally, in the tropical South Pacific, the distribution of tropical storms and their tracks are dominated by ENSO and decadal variability, with small islands to the east of the dateline highly likely to receive a higher number of tropical storms during an El Nino event compared to a La Niña event and vice versa (Brazdil *et al.*, 2002).

5. Climate change will be a major impediment to the achievement of sustainable development in small islands, as all economic and social sectors are likely to be adversely affected, and the cost of adaptation will be disproportionately high, relative to GDP. In attempting to mainstream adaptation strategies into their sustainable development agendas, small islands will be confronted by many challenges including insufficient resources, equity considerations, prioritization of adaptation measures and uncertainties over climate change projections and adaptation strategies.

6. The need to implement adaptation measures in small islands with some urgency has been recently reinforced by Nurse and Moore (2005), and was also highlighted in the TAR where it was suggested that risk-reduction strategies together with other sectoral policy initiatives in areas such as sustainable development planning, disaster prevention and management, integrated coastal zone management and health care planning should be employed. Since then a number of projects on adaptation in several small island states and regions have adopted this suggestion. Projects aim to build capacities of individuals, communities and governments so that they are more able to make informed decisions about adaptation to climate change and to enhance their adaptive capacity in the long run.

7. Given the urgency for adaptation in small island states there has been an increase in *ad-hoc* stand alone projects, rather than a programmed or strategic approach to the funding of adaptation options and measures. It can be argued that successful adaptation in small islands will depend on supportive institutions, finance, information and technological support.

8. Thus an adaptation strategy for the Pacific islands and indeed for Solomon Islands should include a strategy for precautionary adaptation since it is difficult to predict far in advance how climate change will affect a particular site, sector or community. Thus adopting a “no regrets” adaptation measures would be justified even in the absence of climate change, as this would more than likely lead to better management of natural resources and sustainable development.

1.2 Objective of Pacific Adaptation to Climate Change (PACC)

9. Given the foregoing urgency for the need for adaptation to climate change in the Pacific island countries, a Pacific Adaptation to Climate Change (PACC) has been developed to assist with the implementation of adaptation measures in 11 countries of the region. Solomon Islands, as one of the participant countries will participate in the PACC implement adaptation measures to enhance its resilience to the adverse impacts of climate change in the longer term.

10. The principal objective of the PACC is to facilitate the implementation of long-term adaptation measures to increase the resilience of a number of key development sectors in the Pacific island countries to the adverse impacts of climate change. A framework for PACC (PACC framework) will be developed through a consultative process involving all relevant stakeholders (including national governments and their respective agencies, institutions, departments and ministries, and non-government organizations, where appropriate, CROP agencies, donor partners, private sector, where appropriate, and others deemed necessary). The PACC framework will guide the implementation of the PACC at the national (including community and/or village) and regional levels.

1.3 Scope of the Report

11. As one of the key outcomes of the in-country consultations is to determine detailed adaptation activities and baselines in each country, this report provides the outcomes of the Solomon Islands in-country consultations on PACC which were held in Suva, Solomon Islands from July 24 to 28 2006. The report is divided into five sections: section I outlined the urgency for adaptation to climate change in SIDS, building on the IPCC third assessment report; section 2 provides a general overview of the climate change and development situation (situation analysis) in the Solomon Islands covering issues relating to assessment of impacts of climate change on the biophysical and human systems and stakeholder analysis; section 3 covers sectoral analysis with regard to a methodology and/or a criteria used to select a priority sector for adaptation intervention, institutional and development baselines within the priority sector as well as the analysis of the impacts of climate change within the priority sector; section 4 provides information of the delivery mechanism for full-sized project implementation of the Fiji component of the PACC and section 5 covers the project goals, outcomes, outputs and activities. The letter of endorsement for co-financing and list of individuals/experts and their respective institutions consulted during the in-country consultation are appended as annexes in section 6.

II. GENERAL OVERVIEW

2.1 Situation Analysis

12. As with other Pacific Island Countries (PICs) and Small Islands Developing States (SIDS), Solomon Islands is very much aware and concerned about environmental degradation and global warming and their detrimental effects. Solomon Islands is made up of hundreds of coral atolls and small volcanic islands congregated to form an archipelago of islets stretching some 1,600 km across the southwestern Pacific Ocean. The total land area is 28,336 km².



Figure 1: Solomon Islands

13. The unique geography and scattered nature of islands has given rise to a heritage of considerable diversity in cultures and linguistics. This diversity had been sustained over the years by communal systems of subsistence furlong and extensive sharing within extended families. However the introduction of the cash economy and a capitalistic approach to productivity has led to changes to the country's socio-economic and political dimensions which have become critical.

14. Solomon Islands has a climate that is typical of any tropical region being warm and

humid, with a mean daily maximum temperature of about 30⁰C and a mean daily minimum of about 23⁰C. Rainfall distribution in Solomon Islands quite varied with annual average rainfall normally ranges from 3000mm to 5000mm. Often drought in the country is associated with the El Nino Southern Oscillation phenomenon (ENSO). From about December to March, is a period of west to north-westerly monsoonal winds and abundant rainfall can be expected – a period where tropical cyclones form and affect the islands. The south-east trade winds (SE trades) blows from around May to October and trigger higher rainfall particularly on the windward side of the islands.

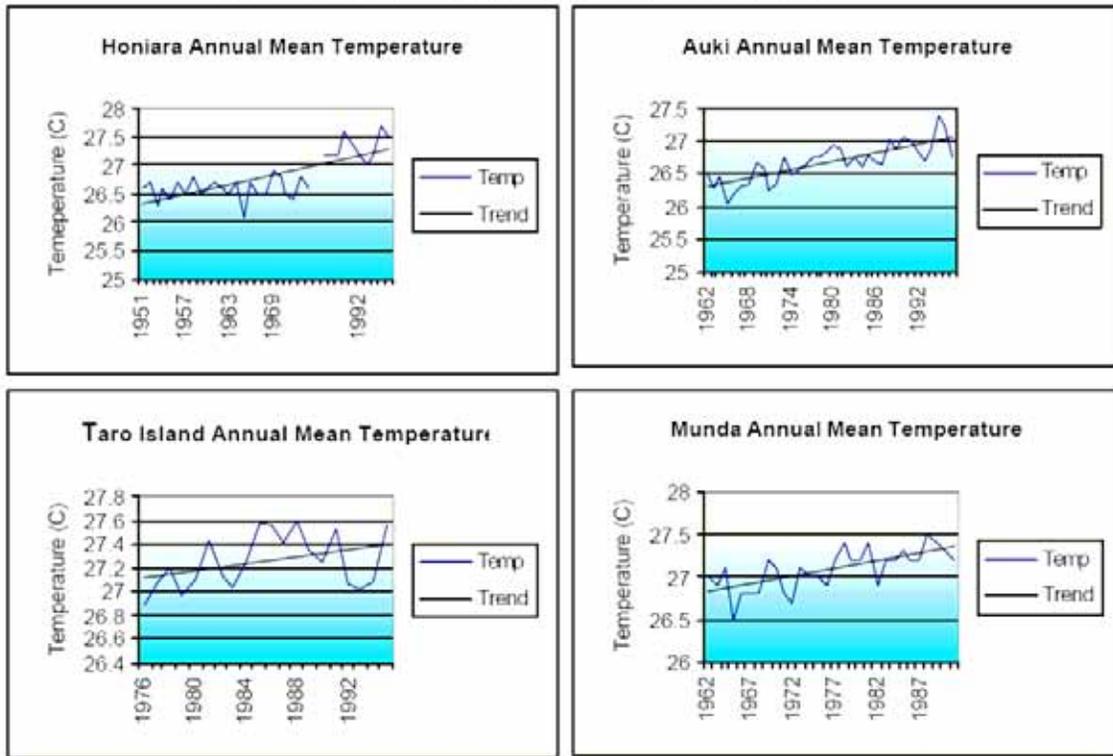
15. However, the country experiences severe tropical cyclones during the summer months of December to February, and is also vulnerable to anomalously long dry spells associated with the warm phase of the ENSO. Solomon Islands is also highly vulnerable to other extreme climate events including, for example, coral bleaching associated with high ocean surface temperatures and/or extremely low tides. The impacts of climate-related events are felt right across the nation's economic, social and environmental systems, thus making future changes in climate, including extreme events, an issue of great concern nationally.

Ratification of the UNFCCC

16. Solomon Islands has ratified the UN Framework Convention on Climate Change (UNFCCC) on 28 December 1994, and submitted its Initial National Communication (INC) to the UNFCCC on 30 September 2004. Following the preparation of its INC, the country has initiated efforts to create an institutional set-up that seeks to mainstream climate change issues into the national legal frameworks.

17. Ratification of the UNFCCC is one step forward in terms of commitment to addressing climate change and related issues. Solomon Islands is also a Party to many other UN conventions, such as those, among others: biological diversity, biosafety, persistent organic pollutants, and combating desertification. The country has also ratified the Kyoto Protocol on 13 March 2003. Solomon Islands has embarked on the implementation of sustainable development programmes which have strong linkages to its reporting commitments under other multilateral environmental agreements. These reports include its contribution to WSSD and JPoI, BPoA and IM, NBSAP under the CBD. It is currently implementing a programme to identify its urgent and immediate needs for adaptation to climate change which will culminate in a National Adaptation Programme of Action (NAPA). With the support of the GEF, Solomon Islands has also begun to identify its capacity building needs relating to the implementation of the UNFCCC, CBD and the UNCCD through National Capacity Self-Assessment.

Temperature trends for locations in Solomon Islands



18. The annual mean temperature trends for various locations indicate a warming trend since the 1950s (see figure 2). This is consistent with warming trend elsewhere in the Pacific islands region and the long-term climate change scenario. The sea level trend to date (year 2005) is +3.7 mm/year but the magnitude of the trend continues to vary widely from month to month as the data set grows. Accounting for the precise level results and inverted barometric pressure effect, the trend is +3.5 mm/year. A nearby gauge, with longer records but less precision and datum control shows a trend of -2.21 mm/year.

2.2 Stakeholder Analysis

Process and approach used

19. The consultations on Pacific Adaptation to Climate Change (PACC) were conducted by the PDFB team¹ and involved eight stakeholder consultations and workshops and several focus group meetings. Three approaches were used to solicit and collect information from various ministries, agencies, institutions of government and non-government organizations:

- a) Gathering of information (including policy documents) relating to the activities, programmes and projects from various government ministries, departments and agencies,

¹ Chief Technical Adviser, UNDP Programme Officer and GEF Expert Consultant

- b) Meetings/consultations and workshop held with representatives of relevant ministries, agencies institutions of government and non-government organizations,
- c) A national consultation workshop on PACC priorities.

20. The consultations were focused on the activities relating to adaptation and other related issues such as institutional arrangements, and opportunities for promoting synergy between the various activities and organizations, priorities for PACC activities, consistent with the UNDP and GEF guidelines/criteria for adaptation activities. Specific issues covered in the meetings and consultations included all elements of project implementation including policy/regulatory framework to integrate adaptation within the design and implementation of development activities; institutional framework; information and knowledge; stakeholder involvement and co-financing possibilities.

Institutions and individuals involved/consulted

21. A total of four eight ministries, agencies and institutions of government in Solomon Islands involving 15 experts were consulted during the in-country consultations and workshop. These consultation workshops provided the opportunity for all individuals and organizations to be informed about PACC objectives, priorities and activities and also to consider some of the common elements or priority activities for adaptation implementation. The consultation meetings were usually carried out over 1-2 hour sessions. Thus, in total 12 hours of consultations were held spread over five days.

22. The PACC Consultation Team (PCT) first met with the Director and four experts of the Department of Environment and Conservation (DEC). The PTA informed the meeting on the PACC priorities and activities that could be funded under the project. In response the Director of DEC outlined the role and responsibilities of DEC and emphasized the need for further studies to be undertaken in communities in order to ascertain how these communities deal with issues/problems relating to agriculture and food security, coastal zone management and water resources management. PCT pointed out that while further assessment is necessary in all areas the focus of PACC is to implement adaptation measures in development sectors to enhance resilience and adaptive capacity over the long term. The Director of DEC also outlined various climate change-related activities which have been carried out in the Solomon Islands including Enabling Activities of the GEF (national communications, national adaptation programme of action and national capacity self-assessment). In addition a number of other enabling activities are being carried out: national biodiversity strategy and action plan, national action plan and sustainable land management programmes. One of the problems/constraints he highlighted was the inherent lack of coherence and coordination between the various programmes and agencies/institutions on environmental issues.

23. The PCT met with the Head of the Water Resources Division (WRD) of Department of Mines and Energy to discuss possible activities that could be funded under the PACC project. After PCT presented the objectives of the PACC and the process by which PACC priorities would be defined the Head of WRD indicated the only assessment work undertaken on the Honiara Water Supply was part of the V&A study incorporated into the initial national communication. He further informed that further assistance has been provided by SOPAC in the areas of training and capacity-building as well as providing technical assistance to the

Solomon Islands Water Authority in dealing with the leakage problems and in developing a Master Plan for up to 2010.

24. The PCT also had consultations with the Department of Transport and Works (Ministry of Transport, Works and Public Utilities) represented by the Permanent Secretary (PS) and three senior staff covering policy and engineering issues. After brief introductions the PCT outlined the purpose and programme priorities of the PACC project and the need to identify additional activities that could be funded and implemented under PACC. The PS outlined the department's operational programmes indicating that there exists at present a programme on building of wharves funded by the EDF8 of the European Union. Seven of these wharves are being planned to be built in cyclone-prone areas. Any one of these wharves could be designed and built with climate-change risk considerations (climate risk proofing) as a pilot project under PACC. The PS further indicated that construction of three bridges are being funded by JICA and erosion as a result of flooding and seawater inundation poses a constant threat to socio-economic activities and infrastructure in or near the coastal zones.

25. Given the long term perspective of the "Infrastructure Development Plan" that will inform public policy on infrastructure development, the PS emphasized that climate adaptation should take into account development of wharves including their design and construction. Such climate proof design and implementation could focus on one of seven wharves as a pilot with a view to replicating lessons learned in other areas within and/or outside the country. In terms of long term sustainability of infrastructure development, a National Transport Fund has been established with support from Australia, New Zealand and the Asian Development Bank to generate funds from vehicle licensing fees for infrastructure development.

26. Ministry of Agriculture and Livestock considers food production and food security as a critical part of the sustainable development policy of the Solomon Islands government (SIGOV). At present a number of agricultural programmes are being carried out including farming systems concentrating on Atoll Agriculture where food sources are diminishing 9e.g Ontong Java and in small islands in the Temotu Province, rice cultivation especially on dry lands where incidence of pests poses a serious threat on Guadalcanal and Malaita islands. The other programmes include Food and Agriculture Organization's (FAO) food security project focusing on infrastructure for quarantine facilities and slaughterhouses for livestock, FAO technical cooperation Programme on farming systems and the SPC-managed Development of Sustainable Agriculture in the Pacific with particular focus on farming problems with soil infertility, pests and diseases. Four sites in three provinces are being used as pilots under this programme.

27. Solomon Islands Water Authority (SIWA) is responsible for supply of water in urban areas of Solomon Islands. The main problem faced by the SIWA relates to the reliability of supply of quality water due mainly to land compensation problems created by the landowners of the catchment area and the high cost of pumping water to a reservoir and an old reticulation system. The problem is exacerbated is often exacerbated by prolonged drought especially during the ENSO such as that of 1997/1998 event. Observations in 2005 indicated that the quantity (as per flow) of water has dropped by about 50% downstream as compared to the flow upstream causing major problems for supply of water. In order to alleviate the problem of constant supply of water to Honiara, Japan International cooperation Agency has funded the development of 16 boreholes which will supply 160 ls⁻¹. Other efforts include

AusAID-funded International Water Centre which will focus on management of water catchments and promote research in Solomon Islands.

28. The National Disaster Management Office has undertaken several disaster assessments in the wake of tropical cyclones and drought on small islands and some coastal communities in Solomon Islands. Assessment of food security situation in small islands affected by changes in ocean-atmosphere interactions, changes in rainfall and temperature, and extremes such as cyclones, storm surges, wave-overtopping, salinisation of freshwater lens, coastal erosion due to sea-level rise. Assessments were carried out in Malaita and Temotu Provinces which have been affected severely by recent tropical cyclones. Detailed information on these assessments is provided under the section on Sectoral Analysis (section III) of this document.

29. In the consultations with the Department of Development Planning and Finance, it was noted that the overall framework for food security in the Solomon Islands is still being developed and is due to be completed by the end of 2006. The focus of this framework is on rural development. There is strong collaboration with the Ministry of Agriculture in developing this broad strategic framework for food and food security. Additionally, the PCT was informed that the Department of Development Planning and Finance will be the GEF Operational Focal Point. In this regard opportunities for co-financing of PACC activities were also discussed and agreed that co-financing will be available to support PACC implementation.

30. Solomon Islands Red Cross (SIRC) has been implementing a number of community-based projects relating to disaster management and climate change in five communities focusing on water resources management including flood control measures. SIRC has conducted training on emergency response in the communities and helping them mobilize stakeholder involvement in disaster management in collaboration with the National Disaster Management Office. SI Red Cross has also facilitated and provided training on the adverse impacts of climate change and sea-level rise at the request of communities/villages. It is currently collaborating with the International Federation of Red Cross to incorporate climate change issues as part of its broad strategy for disaster management in the Solomon Islands.

31. It is clear from the foregoing that climate change impacts are slowly being felt across a broad spectrum of society. While the main focus of many of the activities carried out by various organizations is not necessarily climate change oriented, most activities undertaken could be included as adaptation activities over the long term due to their veracity as sound environmental and sustainable management of resources in the Solomon Islands.

STAKEHOLDERS AND INSTITUTIONS CONSULTED

Institution	Stakeholders interests/responsibilities	Relevance to climate change/reasons for inclusion	Role in the consultations
GOVERNMENTAL INSTITUTIONS			
SOLOMON ISLANDS METEOROLOGICAL SERVICE	<p>Operational focal point of the UNFCCC.</p> <p>Responsibilities:</p> <ul style="list-style-type: none"> - Monitoring of past and local weather and climate conditions - Provide meteorological information – warnings on severe weather or climate conditions, 	<p>Climate Change Unit, established within SIMS.</p> <p>Secretariat to National Climate Change Country Team.</p> <p>Responsible for preparation of the INC and SNC and its submission to the CoP</p> <p>Responsible for NAPA preparation in collaboration with other relevant agencies</p>	<p>Regular consultations with the UNFCCC focal point for discussion of the proposal in terms of technical issues, opportunities for synergy among various projects and institutional arrangements.</p> <p>Consultation on the provision of climate data and information as well as on the needs project management and delivery mechanism for PACC implementation</p> <p>Consultations on possibilities for co-financing</p>
DEPARTMENT OF ENVIRONMENT AND CONSERVATION	<p>Operational focal point of the GEF</p> <p>Responsible for land management and all matters relating to land, natural resources and environment</p>	<p>Member of the National Climate Change Country Team</p>	<p>Consultations on national priorities, mainstreaming of climate change in national environmental strategies, programmes and other documents, as well as on current and planned projects.</p> <p>Reiterated the need for further studies on PACC themes in communities.</p> <p>Many environmental acts/legislations exist but are not implemented.</p> <p>Currently responsible for NBSAP, NAP and sustainable land management but highlighted lack of coordination and cohesiveness between the various line agencies on these matters.</p>

Institution	Stakeholders interests/responsibilities	Relevance to climate change/reasons for inclusion	Role in the consultations
DEPARTMENT OF MINES AND ENERGY – WATER RESOURCES DIVISION	Responsible for water resources management issues, legislations, etc	Member of NCCCT	Climate vulnerability and adaptation assessment for water sector as part of preparation of initial national communication under the UNFCCC Participated in the training and capacity-building programmes of SOPAC and collaborating with SIWA on Water Resources Master Plan 2006-2010
MINISTRY OF AGRICULTURE AND LIVESTOCK	It is in charge of Agriculture policy of the government covering food production and food security. Currently involved with FAO Regional Food Security Project, FAO/TCP project on farming systems and telefood and Development of Sustainable agriculture in the Pacific (DSAP) with the support of the SPC	In charge of sustainable agriculture, rice cultivation as alternative food source. Member of NCCCT	Consultation with regard to the issues related to agriculture and food security. Consultation on data needs for V&A assessment regarding agricultural crops. Information on assessments of CC impacts on food systems on atoll islands. Infestation of pests on dry-land rice crop during August-September. Possibilities exist for co-financing
MINISTRY TRANSPORT, WORK AND PUBLIC UTILITIES	Responsible for Infrastructure development	Member of NCCCT	Possible climate change adaptation project on construction of wharves in outer islands – by changing engineered design and construction. Possibilities for replication are good Co-financing is available
MINISTRY OF FINANCE AND DEVELOPMENT PLANNING	Responsible for integrating climate change issues and concerns into national planning Proposed operational focal point of the GEF (awaiting Cabinet approval)	Member of NCCCT Developing a national climate change policy	Consultations on the progress made on the overall framework for food and food security. A draft Agriculture and Rural Development Plan is available

Institution	Stakeholders interests/responsibilities	Relevance to climate change/reasons for inclusion	Role in the consultations
			Opportunities exist for co-financing
SOLOMON ISLANDS WATER AUTHORITY (SIWA)	Responsible for the management and supply of water to urban areas	Water Resources Management theme being considered as a focal area for adaptation intervention	<p>Consultations on the process of incorporating climate change issues into the management of water resources</p> <p>Information on donor-funded programmes and most activities identified are likely to be covered by the integrated water resources management project</p> <p>Limited co-financing available</p>
NATIONAL DISASTER MANAGEMENT OFFICE	Responsible for disaster response, preparedness and rehabilitation	<p>Member of the NCCCT</p> <p>Undertakes post-disaster assessments</p>	<p>Consultations on the provision of data and information on disaster assessments on various islands and communities</p> <p>Co-financing is possible</p>
Non-Government Organizations			
SOLOMON ISLANDS RED CROSS	Mainly involved in pre-disaster planning and post-disaster relief work and disaster preparedness	In collaboration with the SIMS, it conducts disaster preparedness training and climate change awareness in communities/villages	<p>Consultations on potential areas for collaboration on community vulnerability and adaptation assessment</p> <p>Information and data on assessments from communities/villages</p>

Wrap up meeting

32. The PACC team presented their findings at a luncheon meeting with all members of the NCCCT (stakeholders) who were consulted during the week. The agenda focused mainly on the proposed focus for PACC Solomon Islands (PACC-Solomon Islands) as well as the proposed institutional arrangements. Issues that have been raised and agreed upon included:

- a) The endorsement by NCCCT to focus on food production and food security thematic area as well as the proposed pilot location in island of Ontong Java. It has been noted that Ontong Java has been experiencing food insecurity problems associated with tropical cyclones and coastal erosion and inundation of agricultural lands and recent assessments of the food situation indicated that it is an urgent priority for PACC-Solomon Islands;
- b) The expected size for PACC-SI pilot is expected to be up to USD500,000;
- c) The expected ratio for co-financing to be applied in this pilot project is 1:4 (i.e. for every dollar of the GEF resources there should be four dollars from other sources).
- d) On institutional arrangements, the NCCCT has endorsed that the project management unit be set up directly under the SIMS, with the Solomon Islands Advisory Committee on Climate Change (SIACCC), as the advisory body on scientific, technical, policy and management issues. The terms of reference (TOR) for the PMU and management arrangements will be developed and will include a provision for the PMU to be accountable to the SIMS, SIACCC, UNDP and SPREP for the project.

2.3 Climate change programmes, projects and activities

33. A number of climate change programmes, projects and activities have been carried out in SI since the entry into force of the UNFCCC. SI was one of ten countries of the Pacific who participated in the Pacific Islands Climate change Assistance Programme (PICCAP) from 1997 to 2001. PICCAP was a multi-country regional enabling activity project funded by the GEF, implemented by UNDP and executed by SPREP to assist participating countries to prepare their initial communications under the UNFCCC. SI prepared its initial national communication and submitted it to the COP in 2004.

34. At present SI has been preparing its national adaptation programme of action and the national capacity self-assessment to identify its capacity needs relating to individual, institutional and systemic capacities to implement the UNFCCC, CBD and the UNCCD. NAPA will help identify urgent and immediate needs for adaptation to climate change that will be implemented with funding support from the least developed countries fund.

VULNERABILITY AND ADAPTATION

35. Within the context of initial national communication a vulnerability and adaptation assessment was conducted to determine what is known about the possible effects of climate

and sea-level change, possible adaptation to these effects and the resultant vulnerabilities in the country.

Subsistence and commercial agriculture

36. Subsistence food crops are already adversely affected by extreme events like droughts and cyclones. Any increase in frequency or intensity of extremes in the future could lead to lower crop yields. In the coastal lowland of Makira taro production has been reduced (less tubers and lower yields) in some recent years because of wave overtopping and warmer temperatures. Similarly, Malaita experienced a shorter fallow period during the warmer and drier conditions of the 1997/98 El Nino. Thus, warmer and drier conditions under climate change would lead to increased losses in production of important crops such as taro and kumara. Additionally, salt and water intrusion and flooding in low-lying coastal areas would further reduce yields.

37. Plantation agriculture in Solomon Islands has also been affected by these extreme events. For example, Solomon Islands Plantation (SIPL) experienced serious losses to oil palm production as a result of the heavy flooding from cyclone Namu and more experienced losses through wind damage and as a result of the 1997/98 El Nino drought. Any increase in cyclone frequency and severity could have serious impacts on palm oil production, particularly given the fact that it took ten years to recover from the effects of cyclone Namu. Similarly, warmer and drier conditions in the future could lead to further production losses.

38. Subsistence and plantation agriculture in Solomon Islands depends heavily on good quality land. However, if there is loss of land (through sea level rise) and reduced quality of land (e.g. through erosion) the agriculture sector will be significantly affected.

Coastal environments and systems

39. The lack of high resolution contour data and data on vertical land movement are serious impediments to any detailed quantitative analysis of flooding and inundation risk. Gizo has been identified as one area at risk. As a high island, it has coastal areas typical of other sensitive areas in Solomon Islands. It has experienced flooding and inundation in its lowland areas which are mainly associated with seasonal storms, high tides and storm surges associated with tropical cyclones. The effect of sea level change combined with storms and cyclones could pose an even higher risk of flooding and inundation.

40. Areas of highest risk in the Solomon Islands are the low-lying islands and atolls including Reef Islands, Ongtong Java and Sikaiana. Sea level rise alone, with no change in climate variability, would increase the risk of flooding and inundation. It is possible that in the extreme case these islands will become uninhabitable.

41. Coastal erosion is already evident in many parts of the country. In Gizo this is affecting Malakarava village. Protective works along the shoreline have been eroded and the situation now is that parts of the road passing through it have been washed out. This process has been observed over a number of years but at a faster rate in recent years. In addition the erosion of the road is particularly worsened by rainfall runoff from the steep hill overshadowing the village. If it were not for the outer ridge of the reef, which acts as a buffer for the stronger wave energies, the erosion would be more severe and have affected the village.

42. Coral reefs are important in Solomon Islands as they provide the main source of sediment for beach formation, provide protection from storm events and are productive habitats and ecosystems. During the recent El Nino there were lower sea levels, which resulted in warming of coral habitats and coral bleaching in some parts of the country, particularly in Western Province. As sea surface temperatures already frequently exceed the temperature tolerance of coral species (25°C to 29°C), it is likely that any increase in sea surface temperature will result in more frequent and severe episodes of coral bleaching.

Human health

43. Falciparum and vivax malaria, transmitted by *Anopheles faurati*, are endemic in Solomon Islands and eradication efforts have had little success. The life cycles of both mosquitoes and malaria parasites are dependent on climatic conditions. Rainfall is important for the mosquito life cycle, hence it has an effect on the mosquito population. Most importantly, temperature influences the rate of parasite multiplication in carrier mosquitoes as well as mosquito biting rates. Thus, overall temperature strongly influences epidemic potential. Higher humidity increases mosquito longevity. It is anticipated that the projected increases in temperature will increase the incidence of malaria in areas already affected. Furthermore, it is likely that mountain areas of islands like Guadalcanal and Makira where malaria incidence is known to be relatively low would likely experience an increase in incidence. Higher temperatures may also favour an increase in incidence of the more dangerous falciparum malaria.

44. Extreme events such as cyclones and flooding are known to be associated with several direct negative effects on public health including loss of life, injury and outbreaks of cholera and other diarrhoeal diseases. Conversely, deteriorated water quality and water shortages as may be experienced under drier future conditions may result in an increase in diarrhoeal disease.

Water resources

45. Present scenarios for Solomon Islands suggest little change in future annual mean rainfall and thus imply that climate change would have minimal effect on water resources. However, in the past, events such as El Nino have had significant impacts on water sources in some parts of the country. The worst was during the 1997/98 El Nino where many areas of South Guadalcanal, Malaita and Western Province, including Gizo Town (Western Province), suffered water crises. Thus, any decrease in average future rainfall or increase in drought frequency or length would adversely affect water supply in such areas.

46. Sea level change may result in salt water intrusion of the important fresh water lenses of the low-lying islands and atolls. This would be worsened by flooding and inundation.

Marine resources

47. What is known presently is that the distribution of tuna stocks is affected by sea surface temperature variations. The changes in sea surface temperature and ocean currents associated with the 1997/98 El Nino reduced the Solomon Islands tuna catches. If average sea surface temperatures change in the future diminished catches might occur more often.

Therefore a more detailed study of the fishery resource, both in Solomon Islands and regionally, and the effects of sea surface temperature changes are required.

III. SECTORAL ANALYSIS

48. The principal objective of Pacific Adaptation to Climate Change (PACC) is to facilitate the implementation of long-term adaptation measures to increase the resilience of a number of key development sectors in the Pacific island countries to the adverse impacts of climate change. The development sectors are food production and food security, water resources management and coastal zone management and its associated infrastructure. Given limited financial resources the countries have been encouraged to focus only one of the three development sectors where adaptation intervention would be essential. Thus one of the objectives of in-country consultations was to determine detailed adaptation activities and baselines in each country.

3.1 Methodology/criteria for selection of priority sector

49. Given that PACC would only support adaptation activities in one of the three main development sectors of food production and food security, water resources management and coastal zone management and associated infrastructure it was necessary to select one of these priority areas for adaptation intervention. In order to facilitate the selection of the priority area the following criteria was used for PACC priority sector. That the selected adaptation project or activities should have:

- a) A strong fit/alignment with the SIGoV's existing programmes
- b) All necessary baseline assessments carried out, and additional activities are ready for implementation, and,
- c) Ability to co-finance and ability to deliver.

Adaptation focal area

50. Based on these three criteria and on the stakeholder consultations (see section 2.2) food production and food security was selected as a priority sector for adaptation intervention in Solomon Islands under the PACC project. Under this theme, an adaptation project entitled **“Piloting climate change adaptation in food production and food security in low-lying atoll island of Solomon Islands”** was proposed for PACC-Solomon Islands. This project would focus on enhancing, and where necessary, developing adaptation measures (hard and soft solutions) in Ontong Java Island, Malaita Province. Ontong Java is often affected severely by tropical cyclones and coastal erosion caused by storm surge and wave-overtopping causing widespread damage to its socio-economic infrastructure, activities communities.

51. Ontong Java also known as Lord Howe Atoll, is a boot-shaped atoll made up of 122 islands lying just south of the equator and 258km north of Santa Isabel. Approximately 57km long and 50km wide with a total population of 3919 Polynesian inhabitants, Ontong Java is the largest lagoon in the Solomon Sea, and is the country's northernmost island. The total land area is 12 km² with the widest stretch of dry ground on the islands of Luaniua

(population 3,312) and Pelau (607 People) measuring only one km, while the average breadth of many of its islands is only a third of this. No island is higher than 13m above sea level with most islands barely two to three meters high and composed mostly of coral debris.

52. Apart from the two main villages of Luaniua and Pelau, few other islands have temporary shelters where a small number of people live, and where there are fine beaches, good coral and plenty of fish throughout the lagoon. The two populated islands consist of freshwater swamps where natural depressions have been artificially deepened for mulching pits to cultivate taro crops, a staple diet on the atoll. Coastal areas consist of narrow strips of coconut palms and scrub, mainly on the ocean side. Annual consumption of coconuts by the atoll's inhabitants is estimated to be around 600 000 nuts annually which averages about one coconut per person per day.

53. The islands of Luaniua and Pelau have village foot paths and garden bush tracks. The same is true of other islands where it is settled by landowners or island-owners only. In the village, the footpath is wider (about 2m on average). The tracks to garden areas are narrower and just enough for a single file of people carrying food baskets and other items collected from the garden areas and coconut plantations.

54. Luaniua people live in one large central village with a total population of 3,312 living in 353 houses. The average family size is 5 persons, and less than 170 children are under 10 years old. The population density is 120 persons km⁻². Pelau has a total population of 607 with 97 children are under 12 years and there are 6 teachers and 1 registered nurse on the island. The population density is 150 persons km⁻² which is high by Pacific standards.

55. At present there is limited integration of climate change adaptation into sectoral development planning and budgeting processes relating to food production and food security at the island and national level and it is hoped that a project such as this will sensitize decision-making that will integrate climate change concerns into planning and budgetary processes over the long term.

3.2 Assessment of priority sector for adaptation activities

56. Food production and food security issues are at the core of the SIGOV's policy on agricultural development which will ensure that "food security for the people is improved and maintained to keep pace with growing population" introducing new agricultural methods, appropriate technologies and crop species suited to highland/lowland terrain and climatic conditions; and by increasing agricultural output for consumption and import/export substitution. Additionally, one of the critical areas highlighted for priority attention is to introduce appropriate subsidies for basic tools and equipment, as well as finance to assist rural family units and individuals in the development of cash crops and other products so as to enable them to actively participate in economic development.

57. Loss of food production/income (island/villages/communities, individuals on Ontong Java) translates into the loss to island economy due to climate change and sea-level rise. Thus, production of food and enhancing food security for the island communities is critical for sustainable development on the island. Whole of island ecological system (whole of

island) can be affected by wind damage, coral reef bleaching, saltwater intrusion, seawater flooding, soil erosion/loss of land, and damage to infrastructure (church, schools, clinics), i.e. making people less able to work – impacts on health, well-being, livelihood.

58. Given that changes in rainfall regimes and sea-level (i.e. extreme events) can affect food production systems on small islands which are highly likely to be exacerbated by future changes in climate it was determined (through consultations and application of the criteria and available documentation) that adaptation intervention would focus on enhancing the resilience of food production systems and food security on Ontong Java island. Lessons learned from this experience would provide further impetus to replication of climate change adaptation intervention in other areas of the country or within the region.

3.3 Current institutional and baseline activities

59. As with many small islands developing States, Solomon Islands is concerned about the impacts of future climate change and sea level rise given the exposure of main socio-economic and cultural activities and infrastructure being located on or near the coastline. Given the high priority on food production and food security the SIGOV has embarked on a number of programmes in collaboration with other partners. The Ministry of Agriculture and Livestock (MAL) is the main agency which manages, administers and implements government policy on improving the food security situation in the country. It is currently implementing a programme of activities relating to appropriate farming systems in a variety of agro-ecological zones including atoll agriculture where food sources are diminishing. MAL is also developing rice cultivation as an alternative food source and trials of this crop are being carried out in Guadalcanal and Malaita.

60. In collaboration with FAO regional Food Security project, MAL is involved in the development and improvement of infrastructure such as quarantine facilities and slaughterhouses for livestock. Under the Technical Cooperation of the FAO, MAL is also involved in development of farming systems and “telefood” programmes as well as European Union-funded programme on Development of Sustainable Agriculture in the Pacific (DSAP) which is being implemented in collaboration with the Secretariat of the Pacific Community (SPC). Under DSAP programme four sites have been selected as pilots in three provinces (Makira, Western and Malaita) where the focus is on main/staple food crops such as sweet potato, yams, cassava, taro and rice.

61. A number of key stakeholders are involved in food production and food security issues including National Disaster Management Office, donor and NGO community and the Solomon Islands Meteorological Services. However, while these organizations’ involvement and participation in food production systems and food security issues have been driven by their mandates, there is low/weak institutional coordination. This affects the flow and exchange of information and knowledge regarding the infrastructure and activities relating to food production and food security in the country. For example baseline information on food production and food security exists for some parts of the country, while climate information is only available for areas/stations that have observation equipment installed.

62. Assessment of food security situation in small islands affected by changes in ocean-atmosphere interactions, changes in rainfall and temperature, and extremes such as cyclones, storm surges, wave-overtopping, salinisation of freshwater lens, coastal erosion due to sea-level rise. Thus a mechanism of stakeholder participation and involvement is required to enhance effective implementation of additional adaptation activities.

3.4 Impacts of climate change on the priority sector

63. Evidence has shown that agriculture (i.e. food production) is often affected by changes in rainfall regimes and sea level especially on small islands or low-lying areas of the country. For example Cyclone Namu caused widespread damage to food crop production on Ontong Java and the El Nino of 1997/98 brought drought conditions to many areas of the country.

64. Recent assessment of food production and food security situation on Ontong Java following Tropical Cyclone Jim has shown that while some food crops were destroyed as a result, many families and communities had adequate supply of food from their gardens in February 2006. However, food shortages were expected after March/April 2006 and throughout further years unless some assistance is provided to improve food security situation. The recent shortage of food and likely food shortages have been experienced due to the following:

- a) Yield from staple fruit trees is not sufficient to meet the food needs of the population and this problem is exacerbated by natural cycles and weather pattern changes.
- b) Yield from root crops is not sufficient to meet the food needs of the population because of declining soil fertility and poor choice of root crop varieties.
- c) Yield from supplementary sources of food (bush, gardens and ocean) have declined as a result of climate change and sea-level rise.

65. Other factors causing the food shortages is high population density dependent mainly on subsistence farming which means size of cultivable land is very small leading to over-cropping and soil degradation as well as to food shortages. The other major factor is poor use of limited agricultural land where there is little or no diversification crops. This problem is compounded by poor soil fertility, inundation and/or intrusion of salt water into agricultural land and limited options to generate income, to enable families to purchase food in times of food shortage from subsistence farming. Income-generation opportunities are mostly based on sale of marine products.

66. Inland garden areas (mainly taro patches) were flooded by seawater for long period causing swamp taro tubers to turn yellow and bitter rendering them not unsuitable for consumption. Seawater flooding also affected the quantity and quality of potable water supply which could be exacerbated by drought conditions. Coastal erosion and inundation of up to 2 metres of land in some locations on the islands of Liuania and Pelau. Thus for Ontong Java sea-level change and its concomitant consequences are already being experienced.

67. The Ontong Java Islanders are amongst the most resilient community of people in the Solomon Islands. They have demonstrated well-developed traditional coping mechanisms for the extreme events themselves in the very small thin strip of land they have. They also rely on copra production and harvesting of their fast depleting supply of marine resources such as trochus and beche-de-mer. The money earned from the harvest of their resources has always been the back drop for the people to fall back on in times of disasters so it has been very rare for the islanders sought assistance from the government in the past.

68. Examples of these coping mechanisms include food preservation and burying the surplus, artificial soil protection and observing edible trees when produced. Houses are built flush to the ground with a network of poles forming the frame with the roof thatched with pandanus leaves. However, even these coping systems are being threatened by climate change and sea-level rise.

3.5 Method for assessing the priority sector baseline

69. Much of the following information on food production and food security situation in Ontong Java was gleaned from an assessment undertaken by the national Disaster Management Office following a request from the Ontong Java community. Further information was taken from other documentation that was made available to the PCT during and after the consultations.

70. Subsistence economy of the island comprises production of coconut and swamp taro (*Cytosperma chamisonis*), taro (*Colocassia esculenta*), fruit trees, bananas and vegetables. Coconuts, unless felled are often resilient to extreme events. The swamp taro sites at Luaniuia and Pelau have been inundated with sea water – 2 to 3 ft in some areas. However, dry conditions have enhanced rapid evaporation of swamp fresh water leaving much higher concentration of salt remaining around the root system of swamp taro for longer period than necessary, destroying the crop. The main fruit trees include cut nuts of both *Barringtonia novae-hibernia* and *Barringtonia procera* species while bananas (*Musa sp.*) is also affected by seawater intrusion as well as sweet potato crop.

71. Both of the main islands of Luaniuia and Pelau have experienced coastal erosion and the consequent recess of the shoreline all around each island. The shoreline has receded (shifted inward/inland all-round the island) over the years and houses reportedly, have been either washed away, damaged or relocated following breach or threat by high seas and/or waves. The incidence of sea flooding the islands is said to have occurred mostly during the months or weeks that are characterized by the largest variation between high and low tides. This situation occurs twice per year especially during or around the months of April and November. The threat of high seas and/or tidal swells (waves) has been observed to be high and worst especially when the periods or hours of high tides coincide with the incidence of tropical storms (moderate to strong winds) or depressions locally or nearby in the Solomon Islands region. Occurrence of tropical storms and cyclones (either locally or in nearby regions) are said to have the same effect at any time during the cyclone season between the months of November and April and does not necessarily has to be a period of highest tide in the month of April or November.

3.6 Determination of additional adaptation activities

72. Given that climate change and sea-level changes affect the whole island system it is important to consider additional adaptation activities that transcend the three main focal/thematic areas such as food production and food security, coastal zone management and associated infrastructure and water resources management. Thus a whole-island system approach to adaptation would be necessarily appropriate for small islands such as Ontong Java. Additional adaptation activities would include protection of coastal zones and integrated coastal zone management using both soft and hard solutions such as sea walls, revetments, bulkheads, break-waters and jetties particularly in built-up areas and in areas where critical infrastructure and activities are located.

73. Similarly, as for protecting the shoreline, the idea is to enable salt water to drain away quicker from the garden areas rather than to prevent inundation of the taro patches by salt water or stop contamination of the groundwater lens in the event of flooding due to tropical cyclones. Thus an engineered drainage system could be built to not only shorten the period of salt water inundation but also, to lower the water level as early as possible to avoid the new “plant shoots” from “drowning”.

74. A detail survey of topographic features of an island as an integrated component of additional adaptation activity to determine water quality sampling and testing as well as groundwater investigation to ascertain the extent of the ground water lens.

IV. DELIVERY MECHANISM FOR FULL-SIZE PROJECT

4.1 Institutional Arrangements

75. All climate change programmes, projects and activities are being coordinated by the Climate Change Section of the Solomon Islands Meteorological Services (SIMS). The climate change section has two staff who carry out tasks/activities relating to climate change in the country such as the preparation of climate change enabling activities (e.g. second national communication and national adaptation programme of action). The Climate Change section also served as a secretariat for the National Climate Change Country Team under the project on the preparation of initial national communication under the UNFCCC.

76. Under the PACC-SOLOMON ISLANDS project, the Climate Change Section will continue to coordinate climate change activities relating to PACC. However, given that PACC is focused on implementation of adaptation activities, the implementing agency for PACC-SOLOMON ISLANDS will be Ministry of Agriculture and Livestock and the executing agency will be the SIMS. The main partners in this project will include the National Disaster Management Office, Department of Environment and Conservation, Department of Mines and Energy, Water Resources Division, Department of Lands and Surveys, Department of Transport, Works and Public Utilities, Department of Fisheries, relevant non-government organizations. SIMS will also serve as secretariat to the proposed Solomon Islands Advisory Committee on Climate Change (SIACC) on issues relating to the implementation of PACC-SOLOMON ISLANDS.

77. In addition to the execution and implementation of PACC-SOLOMON ISLANDS, SIMS will host at least two full-time staff that will provide the day-to-day operation of the PACC. These two full-time staff will be part of the PACC Project Management Unit (PMU) which will be directly responsible to the Director of SIMS.

78. At the national level, PACC-SOLOMON ISLANDS will be implemented by various stakeholders within their respective mandates while scientific, technical and policy oversight will be provided by the SIACCC which will comprise of representatives from various government ministries, agencies and institutions, the private sector and non-government organizations.

4.2 Assessment of existing and potential barriers to adaptation implementation

79. PACC-SOLOMON ISLANDS is underpinned by SIGOV policy and regulatory framework on Food production and food security and its strategy for rural development. The project will also be supported by a number of climate change enabling activities (e.g. national communication and national adaptation programme of action) that have also involved numerous organizations, institutions and individuals in carrying out various tasks and activities. These activities have been supported by the NCCCT through the provision of scientific, technical, policy and management oversight and guidance. Thus many of the roles and responsibilities have been clarified but some barriers still remain and will have to be overcome in order to improve delivery of the PACC-SOLOMON ISLANDS. Some of these barriers include, competing demands on staff time, inadequate staff resources, equipment, and lack of incentives.

80. Lack of capacity (human, systemic, institutional, financial and technical) constrains the sharing of information and knowledge particularly of climate change and adaptation issues which makes the integration of climate change adaptation into sustainable development prohibitive. A project of this kind will more than likely make the integration of climate change into sectoral planning possible.

V. EXPECTED GOAL, OUTCOMES, OUTPUTS AND ACTIVITIES

Goal:

81. The main goal of this project is to enhance the capacity of the Solomon Islands to adapt to climate change, including variability, in selected key development sectors.

Specific Objective:

82. The main objective of this project is to “increase the resilience and enhance adaptive capacity of communities, socio-economic activities and infrastructure”. This objective will be achieved through a project “Piloting climate change adaptation in food production and food security in a small island of Solomon Islands.” This project will also focus on enhancing, and where necessary, increasing food production and improving food security in a small island. The implementation of adaptation activities relating to food production and food security

entails a myriad of activities that will also transcend water resources and coastal zone management.

Specific Outputs:

Output 1.1: Relevant plans and programmes incorporate climate risks in the food production and food security sector in the Solomon Islands.

Output 2.1 Practical guidance to improve ability of isolated small island communities' to reduce vulnerability to the effects of climate change in the food production and security sector.

Output 2.2 Measures identified in the Guideline (2.7.1a) to improve resilience of the food production and food security sector implemented in a pilot situation (with co-financing support)

Description:

Output 1.1: Relevant plans and programmes incorporate climate risks in the food production and food security sector in the Solomon Islands.

83. This will include integrating climate change into key development sectors that are highly vulnerable to climate change which include; agriculture, water, and coastal management. At the national level, work in climate variability and change is still the 'domain' of Meteorology Services, Environment Departments and National Disaster Agencies but the impacts are being felt by other agencies e.g. Fisheries, Agriculture, Forestry, Physical Planning, and Public Works. To mainstream key climate change issues into development plans of government sectors, a number of critical steps would be followed, which requires collaborative analytical and policy inputs from a number of different technical experts and domestic partners. Critical components of mainstreaming include: review of the NSDS and its role in national development; the identification of the strengths, weaknesses, gaps, responses to strengthen specific sectoral management (problem tree analysis and objective/ solution identification); the review of the link between sectoral plans and NSDS and the relationship between sectoral medium term budget and the medium term national fiscal expenditure and revenue budget; and strengthening of sector level budgeting that reflects outcome focused priorities and national development goals.

Specific activities to be undertaken would include:

- Promote and support dialogue, exchange of information and coordination amongst early warning, disaster risk reduction, disaster response, development and other relevant agencies and institutions at all levels, with the aim of fostering a holistic and multi-hazard approach towards disaster risk reduction.
- Development or customizing of a mainstreaming methodology that takes into consideration climate change technical and policy frameworks and issues;

- Forming of a Mainstreaming Team to work with key government sectors to mainstream climate change issues into key sectoral plans and policies;
- Countries to form V&A Teams comprising people in various agencies and institutions who can collaborate, integrate their work and be the main contact points in the various agencies to champion adaptation approaches and initiatives. Once the teams are formed a range of capacity building initiatives to be developed in the next component can be implemented.
- Mainstream climate change risk considerations into planning procedures, especially for major infrastructure projects, including the criteria for design, approval and implementation of such projects and considerations based on social, economic and environmental impact assessments.

Output 2.1 Practical guidance to improve ability of isolated small island communities' to reduce vulnerability to the effects of climate change in the food production and security sector.

Output 2.2 Measures identified in the Guideline (2.7.1a) to improve resilience of the food production and food security sector implemented in a pilot situation (with co-financing support).

84. This output will assist the Department of Agriculture and key stakeholders including communities to build their capacity to design and implement an integrated food security programme that would reduce their vulnerability to the effects of climate change. The programme would include several measures that include; community participatory vulnerability assessments, designing and evaluation of adaptation technologies to reduce crop yield decline, reduce wave overtopping and inundation and takes coastal and land-based management issues into consideration. The annual mean temperature trends for various locations of the Solomon Islands indicate a warming since the 1950s. This is consistent with warming trends elsewhere in the Pacific islands region and the long-term climate change scenario. The sea level trend to date (year 2005) is +3.7 mm/year but the magnitude of the trend continues to vary widely from month to month as the data set grows. Accounting for the precise level results and inverted barometric pressure effect, the trend is +3.5 mm/year. As a result of temperature change and extreme events like droughts and cyclones, food crops are already adversely affected. Areas of highest risk in the Solomon Islands are the low-lying islands and atolls including Reef Islands, Ontong Java and Sikaiana. In the coastal lowland of Ontong Java, which is also a pilot site of the PACC project, food shortages on the island have been reported to the National Disaster Office. Decline in yields of root crops particularly taro due to the combination of warmer temperatures and salt water inundation have significantly reduced yields in the past several years. Ontong Java also known as Lord Howe Atoll, is a boot-shaped atoll just south of the equator and 258km north of Santa Isabel. Approximately 57km long and 50km wide with a total population of 3919 inhabitants. The government has committed USD 2.4. million as part of its recurrent budget on food production and security to carry out assessments and research on how the general population in Ontong Java and other atoll islands in the Solomon Island with similar vulnerabilities would be able to sustain

food production in light of challenging climate related extreme events. This output would contribute towards this endeavor and activities to be undertaken would include:

- Community based participatory vulnerability assessment targeting food production and livelihoods.
- Participatory development and demonstration of practical guidance to maintain and enhance food security combining both modern and traditional knowledge and technology and using communities comparative advantages to support adaptation options
- Use of climate change models and traditional knowledge to design appropriate storage facilities to ensure food security during extreme events.
- Enhance national research agency and communities capacity to design, plan and pilot trials to test the use of salt resistant crops and other field and tree crops to promote diversification
- Replanting and protecting foreshore and littoral vegetation and fruit trees

PROJECT LOG FRAMES AND INDICATORS

Project Log Frame and indicators for Solomon Islands would be finalized during the inception meeting of the PACC project.

BUDGET

Responsible	ERP/Atlas	Budget Description							
	Budget Code								Total
				Year 1/08	Year 2/09	Year 3/10	Year 4/11	Year 5/12	Budget
Outcome 1	71200	International Consultants (including national regional staffing)	10,000	10,000	0	0	0	0	10,000
	71300	Local Consultants (including national staffing)	30,000	5,000	5,000	10,000	5,000	5,000	30,000
	71400	Contractual Services - Ind	20,000	5,000	5,000	5,000	5,000	0	20,000
	71600	Travel	20,000	0	5,000	5,000	5,000	5,000	20,000
	72100	Contractual Services - Co	40,000	10,000	10,000	10,000	10,000	0	40,000
	72200	Equipment & Furniture	10,000	5,000	1,000	3,000	1,000	0	10,000
	72400	Communication & Audio Visual equipment	4,000	2,000	500	500	500	500	4,000
	72500	Supplies	1,000	500	100	100	200	100	1,000
	72800	Information technology and Outreach	3,000	500	1,000	500	1,000	0	3,000
	74200	Printing, Publishing & Production	2,000	0	500	500	500	500	2,000
Subtotal			140,000	38,000	28,100	34,600	28,200	11,100	140,000
Outcome 2									
	71200	International Consultation	10,000	10,000	0	0	0	0	10,000
	71300	Local Consultants	40,000	5,000	15,000	15,000	5,000	0	40,000
	71400	Service Contracts - Ind	50,000	5,000	20,000	15,000	5,000	5,000	50,000
	71600	Travel	20,000	2,000	5,000	5,000	5,000	3,000	20,000
	72100	Contractual services - Co	297,400	60,480	60,480	60,480	60,480	55,480	297,400
	72200	Equipment & Furniture	10,000	0	5,000	5,000	0	0	10,000
	72500	Supplies	40,000	5,000	10,000	10,000	10,000	5,000	40,000
	72400	Audio Visual Equipment and Communication	10,000	2,500	2,500	2,500	2,500		10,000
	72800	Information Technology Equipment and Outreach	10,000	3,000	3,000	2,000	1,000	1,000	10,000
	74200	Printing and Publications	10,000	1,000	3,000	3,000	2,000	1,000	10,000
Subtotal			497,400	93,980	123,980	117,980	90,980	70,480	497,400
Outcome 3									
	71200	International Consultants							
	71300	Local Consultants							0

	71600	Travel	20,000	4000	4000	4000	4000	4000	20,000
	72100	Contractual Services - Co							0
Subtotal			20,000	4000	4000	4000	4000	4000	20,000
Outcome 4			88,758	17752	17752	17752	17752	17750	88,758
Subtotal			88,758	17752	17752	17752	17752	17750	88,758
Total			746,158	153,732	173,832	174,332	140,932	103,330	746,158

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ANNEXES

Letter of co-financing

TERMS OF REFERENCE

SOLOMON ISLANDS ADVISORY COMMITTEE ON CLIMATE CHANGE (SIACCC)

Background

Solomon Islands experience a high level of risk from the effects of climate change. Reducing the adverse effects of climate change is a fundamental developmental challenge for the country. This must be urgently addressed in order to contribute to improving livelihoods, economic well-being and health, as well as maintaining biodiversity and culture. An integrated and multi-stakeholder approach that considers the complete cycle of interlinked causes and effects, within the context of anticipatory adaptation across all sectors, is vital.

Climate change is a cross-cutting issue that transcends many thematic areas like agriculture, fisheries, water etc. To be adequately addressed, there is a need to establish a coordinating body that will provide an overall advisory role to guide climate change programmes in the Solomon Islands. A partnership approach to climate change implementation that involves all appropriate stakeholders would be the best way forward for Solomon Islands.

Solomon Islands Advisory Committee on Climate Change

The Solomon Islands Advisory Committee on Climate Change (SIACCC) will be responsible for overall supervision of all climate change programmes to be implemented in the Solomon Islands. This will include providing strategic direction and evaluating different climate change project outcomes and how it contributes to Solomon Islands sustainable development policy. SIACCC will in general be responsible to international donors on specific project deliverables to ensure that project activities are being carried out in a timely manner and to acceptable levels of quality.

Duties and Responsibilities

The SIACCC responsibilities will include the following:

- Provide policy guidance and technical advice to all climate change programmes such as the Second National Communication to the UNFCCC Conference of the Parties, National Adaptation Programme of Action (NAPA), Pacific Greenhouse Gas Abatement Project (PIGGAREP), National Capacity Self Assessment (NCSA) where related to climate change, Pacific Adaptation to Climate Change (PACC) and other relevant programmes to take place in the Solomon Islands,
- Make informed consensus decisions on issues arising from the Climate Change Convention, Kyoto Protocol, Post 2012 dialogue and any future Plans for Action as decided by the Conferences of the Parties,

- Facilitating political inclusion in the national climate change process, particularly to encourage appropriate policy development to enable effective national responses to climate change.
- Coordinate International Climate Change negotiations, ensuring consistency, relevancy and real benefits to Solomon Islands in participation,
- Inform respective departments on Climate Change issues, particularly consideration of climate change issues in sectoral policies and other department plans,
- Monitor and facilitate different climate change projects that are implemented at the national and community level that includes relevant data and information systems.
- Ensure that the Department responsible for settling the financial contributions of Solomon Islands to the UNFCCC is accorded.
- Recognize and encourage human resource development in the field of scientific research and development, including the formulations of projects and joint projects, particularly in the context of Climate Change,
- Establish and coordinate the work of the National Group of Experts or any core group that would be formed to assist in the implementation of any climate change project,
- Ensure appropriate climate change acts/legislation is enacted,
- Facilitate access to funding for the national climate change effort, and
- Endorsing the detailed work plan, produced thematic reports, for climate change projects e.g. Final 2nd National Communication (SNC) Report and Action Plans, National Adaptation Programme of Action (NAPA), and Pacific Adaptation to Climate Change (PACC) Workplan and Budget.

Membership

The following will be the members of the SIACCC:

- Meteorology
- Environment and Conservation
- National Development Planning
- Agriculture and Land Use
- Fisheries
- Mines and Energy
- Foreign Affairs
- Public Works and Infrastructure
- Health
- Disaster and Emergency Management
- Appropriate NGOs

Secretariat

The Solomon Islands Meteorological Services will serve as the Secretariat of the SIACCC.

Meeting Frequency

The SIACCC will meet twice per month or at the Secretariat's request and will also use e-mail distribution lists, newsletter, phone, conference calls, fax, etc. for communication.

Attendees at the national Workshop on PACC-SOLOMON ISLANDS

	Name	Official Position	Organisation	Email / Postal Address
1.	Loti Yates	Director	National Disaster Management Office	ndc@solomon.com.sb P.O. Box G11 Honiara
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4.	Fred Patterson	Project Assistant	National Capacity Self-Assessment	Freds_p@yahoo.com P.O. Box G24 Honiara
5.	Nesta Leguvaka	Project Co-ordinator	National Capacity Self-Assessment	Nesta_lolley@hotmail.com P.O. Box G24 Honiara
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8.	Jane Waitera	Permanent Secretary	Department of Nation Planning & Economic Dev.	psrp@pmc.gov.sb P.O. Box G30 Honiara
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12.	Douglas Yee	Senior Meteorology Officer (Climate Section)	Solomon Islands Meteorological Services	dglsyee@yahoo.com.au P.O. Box 21 Honiara