ENABLING ACTIVITIES FOR THE PREPARATION OF TUVALU'S SECOND NATIONAL COMMUNICATION TO THE UNFCCC

Department of Environment
Ministry of Natural Resources & Lands
TUVALU

Brief Description

The project will enable Tuvalu to prepare its Second National Communication to the Conference of the Parties of the UN Framework Convention on Climate Change. The activities within the Second National Communication (2NC) are a continuation and update of the work done by Tuvalu to prepare its Initial National Communication (INC) that was carried out under the regional Pacific Islands Climate Change Assistance Project (PICCAP). The main components of the project are:
a.) Inventory of GHG Emissions,
b.) Programmes containing measures to facilitate adequate adaptation to, and mitigation of climate change,
c.) and Programmes and national action plans that are considered relevant for the achievement of the objectives of the UNFCCC.

The Project will further enhance the national capacities and will raise general knowledge and awareness on climate change and its effects. It will also contribute to putting climate change issues higher on the national agenda through strengthened cooperation and increased involvement of all relevant stakeholders in the process. In addition, it will strengthen and build national capacities for participation in different mechanisms related to GHG mitigation and to fulfilling other commitments under the UNFCCC.

LIST OF ACRONYMS

ACP/EU	Asian, Caribbean & Pacific/European Union
ADB	Asian Development Bank
APR	Annual Project Report
AUSAID	Australia Agency for International Development
BPOA	Barbados Programme of Action
CB	Capacity-building
CDM	Clean Development Mechanism
COP	Conference of Parties
EIA	Environmental Impact Assessment
ENSO	El Nino-Southern Oscillation
GACMO	GHG costing model
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gases
GIS	Geographical information systems
INC	Initial National Communication
INFNET	information & networking
IPCC	Intergovernmental Panel on Climate Change
IWP	International Waters Program
LEAP	Long-Range Energy Alternatives Planning System
LULUCF	Land Use, Land-Use Change and Forestry
MAGICC-SCENGEN	Interactive software for climate change investigations
NAPA	National Adaptation Plan of Action
NCCC	National Climate Change Coordinator
NCCCT	National Climate Change Country Team
NCSA	National Capacity Self-Assessment
NCW	National Council of Women
NDMO	National Disaster Management Office
NGOs	Non-Government Organizations
NIWA	National Institute of Water and Atmosphere
ODS	Ozone Depletion Substance
OMIA	Office of the Minister for Outer Islands Administration
PACER	Pacific Agreement on Closer Economic Relations
PATA	Pacific Area Tourism Association
PICCAP	Pacific Island Climate Change Assistance Program
PICTA	Pacific Islands Country Trade Agreement
PIEPSAP	Pacific Island Energy Policies and Strategic Action Plans
PI-GCOS	Pacific Islands Global Climate Observation Systems
PIGGAREP	Pacific Islands Greenhouse Gas Abatement through Renewable Energy Project
PIREP	Pacific Island Renewable Energy Project
PMT	Project Management Team
POPs	Persistent Organic Pollutants
QA/QC	Quality Assurance/Quality Control
REEP	Renewable Energy and Efficiency Program
RSO	Research & Observation Systems
SBAA	Standard Basic Assistance Agreement

2NC	Second National Communication
SPCZ	South Pacific Convergence Zone
SPREP	Secretariat of the Pacific Region Environment Programme
SOPAC	South Pacific Applied Geoscience Commission
TANGO	Tuvalu Association of NGOs
TNA	Technology Needs Assessment
TWG	Thematic Working Group
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention for Combating Desertification
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention on Climate Change
UNEP	United Nations Environment Programme
UNESCO	United Nations Education, Social & Cultural Organisation
V&A	Vulnerability and adaptation assessment
VCA	Vulnerability capacity assessment
WASP	Optimization model for the energy sector
WMO	World Meteorological Organisation
WSSD	World Summit for Sustainable Development
WTO	World Trade Organisation
WWF	World Wide Fund for Nature

Chemical symbols

NO_X	Oxides of Nitrogen
SO_X	Sulphur oxides
CO_2	Carbon Dioxide
CO	Carbon monoxide
CH_4	Methane
N_2O	Nitrous oxide
NMVOC	Non Methane Volatile Organic Compound
HFC	Hydrofluorocarbon
PFC	Perfluorocarbon
SF_6	Sulphur hexafluoride

1. ELABORATION OF THE NARRATIVE

1.1. SITUATION ANALYSIS

Being one of the most vulnerable countries to the impacts of climate change, Tuvalu is very much aware of and concerned about global warming and its detrimental effects. Ratification of the UNFCCC was one step forward in terms of Tuvalu' commitment to addressing climate change.

Tuvalu ratified the UN Framework Convention on Climate Change (UNFCCC) on 26 October 1993, and has submitted its Initial National Communication (INC) to the UNFCCC on 30 October 1999. The country has also ratified the Kyoto Protocol on 16 November 1998.Following the preparation of its INC (under the Pacific Islands Climate Change Assistance Project (PICCAP) and Phase II Enabling Activities), the country has initiated efforts to create an institutional set-up that seeks to integrate climate change issues into the national legal frameworks. Moreover, its INC provides compelling evidence that, by global standards, Tuvalu is one of the nations most vulnerable to climate change and sea-level rise.

Tuvalu is also a Party to many other UN conventions, including: biological diversity, ozone depleting substances and combating desertification. Environmental and climate change issues are at the forefront of the Government of Tuvalu reporting requirements under the WSSD, ten-year review of the Barbados Programme of Action (BPoA+10) and Millennium Development Goals (MDG) processes. In its Medium-Term Economic Framework Programme, 1992-1994, the Government of Tuvalu clearly identified sea-level rise as a major concern:

Tuvalus's State of the Environment Report (SOER) produced in 1993 recognised that climate change was a major threat to the country. The SOER recommended a number of actions to be taken to help prepare the country for future impacts. These included:

(1) Collect and consolidate basic environment data for the whole country;
(2) Undertake systematic cross-island environmental surveys to gauge the susceptibility of different areas to inundation under present conditions and possible conditions in the future;
(3) Run programmes of research about the coastal process of the islands (sediment production, transport and deposition,) monitor beach and shoreline profiles in both inhabited and uninhabited areas so that an accurate record of changes can be maintained;
(4) Undertake a coastal zone mapping programme to identify areas most vulnerable to erosion.
(5) Restrict generally and prohibit in places close to built-up areas the collection of reef rock from areas of reef platform; and restrict the collection of sand and shingle from beaches in areas already known to be vulnerable.

The recommendations of the SOER are now being incorporated into Tuvalu's National Adaptation Plan of Action.

1.2. STRATEGY

In compliance with its obligation as a non-Annex I Party to the UNFCCC, Tuvalu intends to avail itself to the funding made available by the Global Environment Facility to prepare its Second National Communications (2NC). The project will assist the Government of Tuvalu in implementing activities needed to enable the country to prepare its 2NC, following the guidelines adopted by the Conference of Parties (COP) to the UNFCCC.

The activities within the 2NC are a continuation, update and an improvement of the work done under the PICCAP and the preparation of the National Adaptation Plan of Action. The project will pay particular attention to addressing identified gaps and constraints during the 2NC stocktaking exercise, making good use of the information derived from such exercises, and utilizing the results of relevant previous or ongoing national or international activities relating to climate change issues.

The proposed project is fully in line with the Tuvalu national development objectives, and its pursuit of improving natural resource management and promoting environmental sustainability. The Government of Tuvalu recognizes the need to conserve and protect the natural environment, and this is an essential component in the country's sustainable development programme.

At the national level, the proposed project will develop synergies with a number of on-going UNDP-GEF enabling activities such as Tuvalu' National Capacity Self-Assessment (NCSA) activities, as well as inherent linkages with other donor-assisted climate change projects in the country.

Tuvalu as a Least Developed Country is accessing funding from the LDC Fund to prepare its National Adaptation Plan of Action. It has appointed a NAPA Coordinator and the Coordinator has undertaken consultations on each of Tuvalu's inhabited islands. Tuvalu's NAPA is in the final phase of preparation and will provide an important adjunct to our second national communication.

The Tuvalu is also participating in a number of Pacific multi-country/regional programmes for energy interventions, which directly and indirectly address climate change issues; the SOPAC/UNDP/Government of Denmark Pacific Island Energy Policies and Strategic Action Plans (PIEPSAP) project, the SPREP/UNDP/GEF, Pacific Islands Renewable Energy Project (PIREP), and the Pacific Islands Greenhouse Gas Abatement through Renewable Energy Project (PIGGAREP).

The project will engage as much as possible the best local expertise available in the country and the region, to assist in the project implementation. The project will make use of linkages and cooperation with ongoing climate change and relevant environment projects that are addressing the national development priorities, and will strengthen the dialogue, information exchange and cooperation among all the relevant stakeholders including governmental, non-governmental, academic, and private sectors. By doing so, it is expected that the climate change related issues would be accorded higher priority on the agenda and ensuring its integration in the national planning and development strategy formulation processes in the country.

The project will make use of and enhance the capacity built and institutional arrangements that had been set up under PICCAP. Capacity-building activities will form an integral part of the project through training workshops, and information exchange between the national and relevant regional and international institutions. This will augment the existing capacity, as well as address capacity gaps that were identified during the stocktaking exercise, the ongoing NCSA project, national risk assessment and adaptation work, and the ongoing regional climate change mitigation projects.

1.3 Management Arrangements

The project will be executed by the Environment Department of the Ministry of Natural Resources & Lands in close collaboration with other relevant ministries and institutions, such as those that constitute the National Climate Change Country Team (NCCCT) and the NAPA Country Team. The National Climate Change Coordinator (NCCC) as the project manager for the second national

communication will work closely with the Global Environment Facility (GEF) and the UNFCCC focal points, NCCCT, the Technical Advisor and the relevant external consultants.

The NCCCT, the NCCC, the NAPA Coordinator, Technical Advisor and the Thematic Working Groups (TWG) will form the project management team for the preparation of the second national communication. The Project Management Team will work and undertake its tasks under the auspices of the Environment Department in consultation with other relevant government departments, agencies, institutions, external consultants, the private sector, and non-government organizations.

The following thematic working groups will be formed to assist with the preparation of various components of the national communication as outlined in Appendix B;

(i) National Greenhouse Inventory,
(ii) Vulnerability and Adaptation Assessment;
(iii) Mitigation
(iv) Technology transfer, research and systematic observation;
(v) Education, training, public awareness and information and networking and Capacity-building; and
(vi) Compilation of National Circumstances, National Communication and Integration of Sustainable Development.

Each TWG will comprise of a number of experts drawing from public and private sectors, communities, and NGOs, as appropriate.

Please refer to section 5, Institutional Framework and Project Implementation, in the Appendix B, Technical components of the project proposal for detailed information.

1.4. MONITORING AND EVALUATION

UNDP guidelines and procedures on reporting, monitoring and evaluation will be followed throughout the project cycle. NCCC will provide regular (i.e. quarterly and yearly) progress reports of the project to UNDP and copy to all members of NCCCT and the Environment Department, who will be hosting and executing the project. These reports will enable the NCCCT and UNDP to evaluate the progress of the project on a regular basis and identify difficulties and shortcomings with a view to overcoming them during the period of project implementation. These reports will be reviewed by UNDP for their quality and standard, comprehensiveness, and conformity to the proposed terms of reference and dates of completion. In addition, a mid-term review between UNDP and the Environment Department may be conducted. An independent evaluation by a qualified consultant will be conducted at the end of the project.

The NCCCT will meet every two months to review project implementation and provide scientific, technical, policy and strategic guidance. The minutes of these meetings will be shared with all participating institutions.

An independent financial audit will be conducted according to the UNDP rules and procedures. During the implementation of the project, regular financial statements will be prepared and provided to UNDP for accessing funds for project activities.

Monitoring Responsibilities and Events

A detailed schedule of project review meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for NCCCT Meetings, (or relevant advisory and/or coordination mechanisms) and (ii) project related Monitoring and Evaluation activities.

Day to Day Monitoring of Implementation Progress – This will be the responsibility of the NCCC based on the project's Annual Work Plan and its indicators. The Project Management Team (PMT) will inform the UNDP-Fiji of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

Periodic Monitoring of Implementation Progress – This will be undertaken by the UNDP-CO through quarterly meetings with the Environment Department, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

Project Monitoring Reporting

The project's National Climate Change Coordinator in conjunction with the UNDP-GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process.

Inception Report (IR)

A Project Inception Report (IR) will be prepared immediately following the Inception Workshop. It will include a detailed First Year Work Plan divided in quarterly timeframes detailing the activities and progress indicators that will guide implementation during the first year of the project. The Inception Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 months time-frame.

The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may effect project implementation. When finalized the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the IR, the UNDP Fiji and UNDP-GEF's Regional Coordinating Unit will review the document.

Quarterly Progress Reports (QPR)

Reports outlining main updates in project progress will be provided quarterly to the local the UNDP-GEF regional office by the project management team.

Annual Project Reports (APR)

The project will be subject to an annual review, the timing of which will be determined by UNDP in

consultation with the executing agency, the Environment Department. During these reviews, project performances will be measured against established work plan targets and expenditures assessed against approved budgets. The NCCC will prepare and submit Annual Project Reports (APRs) to UNDP, which will be used as a basis for the annual reviews.

Technical Reports

Technical Reports are detailed documents covering specific areas of analysis or scientific specializations within the overall project. As part of the Inception Report, the project management team will prepare a draft Reports List, detailing the technical reports that are expected to be prepared on key areas of activity during the course of the Project, and tentative due dates. Where necessary this Reports List will be revised and updated, and included in subsequent APRs. Technical Reports may also be prepared by external consultants and should be comprehensive, specialized analyses of clearly defined areas of research within the framework of the project. These technical reports will represent, as appropriate, the project's substantive contribution to specific areas, and will be used in efforts to disseminate relevant information and best practices at local, national and international levels.

Audit Clause

The Government of Tuvalu will provide the UNDP Fiji with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP-GEF funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

Please refer to the TOR section in annexes for further details on the scope of audit.

1.5. LEGAL CONTEXT

This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement (SBAA) between the Government of Tuvalu and UNDP, signed by the parties. The host country implementing agency (UNDP-Fiji) shall, for the purpose of the SBAA, refer to the government co-operating agency described in that Agreement.

UNDP acts in this Project as Implementing Agency of the Global Environment Facility (GEF), and all rights and privileges pertaining to UNDP as per the terms of the SBAA shall be extended *mutatis mutandis* to GEF.

The UNDP Resident Representative is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:

1 Revision of, or addition to, any of the annexes to the Project Document;
2 Revisions, which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;
3 Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and,
4 Inclusion of additional annexes and attachments only as set out here in this Project Document

2. Budget

Award ID: 00039767
Award Title: PIMS 2956 CC EA: Enabling activity for the Preparation of Tuvalu's Second National Communication to the UNFCCC
Project ID: 00044752
Project Title: PIMS 2956 CC EA: Enabling Activity for the Preparation of Tuvalu's Second National Communication to the UNFCCC
Executing Agency: Department of Environment (DoE)

Project Outcomes / Atlas Activity	RESPONSIBLE PARTY	PLANNED BUDGET						
		Source of Funds	Atlas Code	Budget Description	Year 1 (US$)	Year 2 (US$)	Year 3 (US$)	Total Budget (US$)
Outcome 1: National Circumstances	DoE	GEF	71300	Local consultants	3,000	3,500	3,500	**10,000**
Outcome 2: National GHG Inventories	DoE	GEF	71300	Local consultants	5,000	5,000	5,000	**50,000**
			72100	Contractual services	10,000	10,000	5,000	
			71200	Regional and / International Consultants	2,000	2,000	0	
			71600	Travel	3,000	0	0	
			74210	Printing and publication	0	0	3,000	
Outcome 3: Programmes containing measures to facilitate adequate adaptation to climate change	DoE	GEF	71300	Local consultants	5,000	5,000	5,000	**91,000**
			72100	Contractual services	10,000	10,000	10,000	
			71200	Regional and / International Consultants	5,000	5,000	5,000	
			71600	Travel	7,000	5,000	3,000	
			72200	Equipment	5,000	5,000	2,000	
				Printing and publication	0	0	4,000	
Outcome 4: Programmes containing measures to mitigate climate change	DoE	GEF	71300	Local consultants	5,000	5,000	5,000	**31,000**
			71200	Regional and / International Consultants	2,000	2,000	0	
			72100	Contractual services	0	1,000	1,000	
			71600	Travel	0	3,000	0	
			72200	Equipment	0	4,000	3,000	
Outcome 5: Other relevant information (e.g., research and systematic observation, technology transfer, education and public awareness, capacity building)	DoE	GEF	71300	Local consultants	10,000	10,000	4,000	**45,500**
			72100	Contractual services	5,000	5,000	5,000	
			74500	Miscellaneous	2,000	2,000	2,500	

Outcome 6: Constraints & Gaps; Related Financial, technical, & capacity needs	DoE	GEF	71300	Local consultants	3,500	3,500	4,000	**11,000**
Outcome 7: Technical Assistance	DoE	GEF	71200	Regional and / International Consultants	7,000	7,000	6,000	**20,000**
Outcome 8: Compilation, Production of communication, including Executive Summary & its translation	DoE	GEF	71300	Local consultants	0	0	5,000	**15,000**
			74210	Printing and publication	0	0	10,000	
Outcome 9: Project Management	DoE	GEF	72100	Contractual services-individuals	25,000	25,000	25,000	**115,500**
			72200	Equipment	5,000	5,000	5,000	
			72505	Office supplies	3,000	3,000	3,000	
			72445	Communications	2,000	2,000	2,000	
			74500	Miscellaneous	3,500	3,500	3,500	
Outcome 10: Monitoring and reporting	DoE / UNDP	GEF	74105	Management and reporting	5,000	5,500	5,500	**16,000**
GRAND TOTAL					**133,000**	**137,000**	**135,000**	**405,000**

APPENDIX A: SUMMARY REPORT OF THE SELF-ASSESSMENT EXERCISE

I. DESCRIPTION OF THE PROCESS AND APPROACH ADOPTED FOR THE STOCKTAKING EXERCISE

The objective of the stocktaking exercise and stakeholder consultations is to build upon existing activities, institutions and knowledge relating to the preparation of national communication and to review and seek relevant information on national stakeholders' experiences from past and existing programmes, and their likely contributions towards the preparations of the 2NC to meet the country's obligations under the UNFCCC.

The stocktaking and stakeholder consultations were carried out by a team of the Director of the Environment Department, Climate Change Coordinator, the International Environmental Advisor and World Wide Fund for Nature - Pacific. Three methods were applied to solicit and collect information from various government ministries, agencies, institutions, the private sector and other non-government organizations and community groups:

a) Desk review of information relating to the climate change activities of the initial national communication and other related activities including broad national policy papers that were readily available to the team members,
b) Meetings and/or consultations with relevant Departmental members of the Environment Department.
c) Meetings and/or consultations with key government ministries, agencies and non-government organizations
d) A national workshop on climate change awareness.

The first two steps above assisted in defining the scope and focus of the stocktaking and stakeholder consultations as well in identifying relevant stakeholders to be consulted. The consultations concentrated on reviewing information from the preparation and completion of the first national communication as well as the perceived needs and priorities for the 2NC following the UNFCCC guidelines adopted by the Conference of the Parties to the UNFCCC (UNFCCC COP decision 17/CP.8). The meetings also examined ways of improving working relationships and synergy between the Environment Department/Ministry of Natural Resources & Lands and other relevant stakeholders as well as between various activities, programmes and projects relating to the preparation of second national communication. The consultations also discussed the setting up of an appropriate institutional structure to implement the various activities that would enable the preparation of the 2NC.

The elements of information covered in the consultations included work carried out under previous climate change enabling activities (e.g. PICCAP, NAPA), gaps/uncertainties, new areas of work to be undertaken, priorities for 2NC, opportunities for promoting synergy/linkages with related programmes and lessons learned and or best practices in INC process that would be useful for the preparation of 2NC. The stocktaking and consultations were centred on the following components of the national communication:

a) National circumstances (development priorities , geography and climate, information needs for adaptation, and mitigation, capacity needs and constraints, institutional arrangements);
b) Greenhouse gas inventories (main sources of emissions and removals, data sources, adequacy and reliability, accessibility, availability and management of data, capacity needs and constraints);

c) Programmes containing measures to facilitate adequate adaptation to climate change (vulnerable sectors, gaps and uncertainties, methods and tools for assessing adaptation options, capacity needs and constraints, priorities for adaptation in the 2NC);
d) Programmes containing measures to mitigate climate change (main sectors, methods and tools, priorities to be addressed, and the linkages to the other development priorities);
e) Other Information (technology needs and other technology transfer-related issues, PICCAP Phase II outcomes, research and systematic observation, education, training and public awareness needs, and the linkages other capacity building activities
f) Constraints and gaps, and related financial, technical and capacity needs (areas for improvement and any new information to be included)

Institutions and individuals involved

A total of ten government ministries, agencies and non-government organizations involving 22 experts and key stakeholders were consulted during the stocktaking and stakeholder consultations. Most of the experts and/or organizations consulted are also members of, or are represented on, the National Climate Change Country Team (NCCCT).

The actual stocktaking and stakeholder consultations were carried out in two phases. The first phase involved a roundtable consultation with government departments and key NGOs who are part of the National Climate Change Country Team. This consultation, undertaken on the 28th October 2005, involved presentations by the Director of the Environment Department and the International Environmental Advisor on the key issues for consideration in the Stocktaking Exercise. Participants were then given an open forum format to present their views on the issues related to the Stocktaking Exercise and they identified key areas for action.

The second phase involved a national workshop on climate change awareness. The workshop was co-facilitated by the Department of the Environment and World Wide Fund for Nature – Pacific. Participants at the workshop included representatives from each of the island groups in Tuvalu, TANGO, the International Red Cross Federation, Island Care, Tuvalu Women's Association, Members of Parliament, including the Prime Minister (who attended the entire workshop) and various government departments. Breakout groups were formed during the workshop to identify key issues for consideration in the 2NC. (These are identified Appendix B).

Institutions and Stakeholders Consulted

Institution	*Stakeholders interests/responsibilities*	*Relevance to climate change/reasons for inclusion*	*Role in the self-assessment process*
GOVERNMENTAL INSTITUTIONS			
Environment Department, Ministry of Natural Resources & Lands	Implementing agency and operational focal point of the GEF, including UNFCCC, UNCCD and CBD and other MEAs. Responsibilities: - management of the state of the environment; -national coordination of actives and programmes related to MEAs including implementation, monitoring and evaluations -issuance and vetting of projects including permits and environmental impact assessments -Liaising with relevant national agencies for assistance to ensure the Tuvalu effective representation at meetings of the Parties to the Convention and other relevant meetings; - Liaising with relevant regional and international bodies to ensure that the representation of the Tuvalu at any meeting concerning a Convention is informed and effective; - Managing or participating in any project, or part of a project, aimed at implementing any aspect of environmental concerns - Disseminating information to local stakeholders and creating public awareness on environmental concerns - Preparing reports, and information papers for the Minister and Cabinet in relation to the implementation of any Convention; -review and improvement of regulations, policies and strategies for implementing environmental concerns. - Provide technical support to any other relevant government department or agency) to implement any obligation under a Convention.	- Climate Change Section, established under the Environment Department. - National Climate Change Country Team (NCCCT) is established under the auspices of the ED/MNRL with administrative and management support from Climate Change Section. - Responsible for preparation of the INC and its submission to the COP - Responsible for preparation of the draft National Implementation Strategy (NIS) in collaboration with other relevant agencies - Responsible for the NCSA. - Responsible for preparation of the National Biodiversity Strategy and Action Programme under the CBD	- Consultations on national priorities, Mainstreaming of climate change in national environmental strategies, programmes and other documents, and on current and planned projects. - Regular consultations with the UNFCCC partners for discussion of the proposal of the second national communication in terms of technical issues, opportunities for synergy among various projects and institutional arrangements. - Regular consultations on the needs and priorities for capacity-building - Regular consultations on the implementation of the Environment Department, NBSAP and the formal adoption of NIS. - Operational focal point of the UNFCCC and the GEF

Department of Agriculture	Department responsible for development of agriculture products for export and local markets. - Consultations with relevant agencies on issues relating to crop production & research, food security, land-use, border control, water, biosafety and biosecurity.	- Member of the NCCCT - Collaboration with ED/MNRL on policy and strategies on agricultural developments as they relate to crop productions, food security, land-use, resources management, vulnerability and adaptation assessment, use of chemicals and inorganic fertilizers, mitigation and other relevant climate change information and data. - Promoting and encouraging development of climate change variability and extremes resilient crops and better practices	- Consultation with regard to the issues related to agriculture research and crop productions especially technology application and techniques. - Consultation on data needs for V&A assessment regarding agricultural crops including issues related to invasive species, chemicals usage, and policies review and development. - Consultation on the provision of climate data and information as well as on the needs for capacity-building, training and research (collection, analysis and archiving) and dissemination of information.
Ministry of Natural Resources	-Responsible for managing the national fisheries and marine resources, including education and awareness programmes.	- Member of the NCCCT - Promotes the well-being of marine resources, fisheries and lagoon ecosystems. - Together with ED/MNRL promotes programmes that heighten the awareness communities effects of climate change and sea-level rise on marine resources and practices. - - Provide technical support to community and private sector projects related to marine resources management, monitoring and evaluations including environmental impact assessment.	- Consultations on strategies for continued participation in preparation of the second national communication, for marine resources management and impact from climate change including variability and extremes, education and awareness and conducting vulnerability and adaptation assessments nationally at both national, sectoral and community levels.
Ministry of Finance, Economic Planning and Industries		- Member of the NCCCT - Effective integration of climate change issues into national strategies and policies including sustainable development programmes	- Consultation with regard to continued participation in preparations for second national communications - Completion of the national development plan and issues relating to cyclone rehabilitation
Department of Foreign Affairs	- Focal Point of the GEF and is responsible for other trade agreements - National coordination of international cooperation	- Facilitation and official information role related to Climate Change - Member of the NCCCT - Effective participation and supportive role to Environment Department in UNFCCC negotiations, dissemination of official information and facilitation for other related development internationally including impacts from climate change on trade.	- Official focal point for the international cooperation - Consultations on continuing participation in preparing second national communications, effects of climate change on trade (export and imports) and also on information dissemination.

Department of Home Affairs	- Responsible for administration and technical support to Outer Islands administrations.	- Proposed member of the National Climate change country Team - Provide expert advice on outer islands resource management issues especially water, forestry, soil erosion and infrastructure development with regards to climate change impacts, and mitigation potential. - Facilitates participation in environment programmes in outer islands and liaise with authorities.	- Consultations on effects of climate change on resources and infrastructure in the outer islands
Department of Lands and Survey	Responsible of mapping and surveying islands		
Ministry of Health	- Responsible for public health activities in management, waste management, as well as surveillance and establishing early warning for vector-borne and water-borne diseases	- Member of the NCCCT - Has collaborated with Environment Department with respect to concerns for land based pollutions affecting the lagoons and peoples health.	- Consultations on information and data on the health effects of changes in rainfall and temperature - Provision of public health statistics, information, and advice relating to climate change education and awareness programmes, trainings, water quality testing including vulnerability and adaptation assessments.
Meteorological Office	- Responsible for providing national meteorological services to the public	- Member of the NCCCT - Has collaborated with Environment Department in providing support to Regional Meteorological Services in data rescue programme and participates in climate-related projects such as sea level monitoring	- Will continue to participate in the second national communications. - Consultations on strategies to enhance capacity-building on climate-related activities including data management activities and technologies including research and systematic observations applications
Ministry of Works and Energy	- Responsible for design and development of infrastructure of public works and services in communities, roads, bridges, drainage, water works, energy inspection, and development, coastal zone protection and management, building standards and control, land survey information, and waste management.	- Member of the NCCCT - Undertakes climate change vulnerability and adaptation assessments, environmental impact assessment work, resource investigations and studies including mapping and planning, development of resources management policies, plans and regulations	- Consultation on strategies for further participation in the second national communications. - Involvement in future climate change related activities including integrating of reducing impacts of risks into development plans and policies, improvement in resource management and training as well as education and awareness

Tuvalu Investment Corporation	- Responsible for the management of government assets especially housing and state-owned enterprises along with lagoon floor.	-Responsible for cyclone rehabilitation activities especially rebuilding of government buildings damaged in recent . Potential role in energy efficiency and increasing resilience of infrastructure.	- Consultations on strategies for cyclone reconstruction efforts, reviews on building codes and standards and including legislations, and national GIS mapping project as well as the ADB TA for infrastructure planning.
Police Department & National Disaster Management	- Responsible for the national disaster management office and national emergency operations centre	- Member of the NCCCT - Responsible for pre disaster and emergency , trainings and educational and awareness , including vulnerability and adaptation assessments, and hazards risks assessments. -responsible for post disaster response and relief operations	- Consultations on strategies for improving and strengthening NDMO and disaster management processes including comprehensive reviewing of procedures, policies and mitigating activities. Continue participation in second national communications
Office of the Prime Minister	- Government Ministry responsible for the environment, economic development, outer islands and finance	- New member of the NCCCT - Key policy decision maker on disaster management and cyclone damage rehabilitation activities including legislation and polices development	- Consultations on immediate and future government policies regarding climate change and impacts, from extremes, and adaptation and vulnerability assessments
Ministry of Transport and Communication	- Regulatory agency responsible for administration of transportation sector, especially shipping and airlines , and ports facilities in the Tuvalu. Responsible for media and public communications	- Responsible for administering regulations related to marine pollution, oil spills and transport (ships and planes safety)	- Consultations on strategies for disaster mitigation, and marine pollutions issues as well as effects of climate change considerations on transportation.
Ministry of Education and Sport	- Responsible for education curriculum development which incorporates subjects relating to climate change, including climate variability and sea-level rise. Responsible for coordinating sporting activities	- Curriculum advisers responsible for development of primary school materials, senior high school courses and materials, as well as teachers' development on general environment issues. Individual schools encourage continuing to adopt their own independent environmental projects.	- Consultations on the process of incorporating climate change issues into the teachers professional development programme and improve the education curriculum for environmental concerns
PUBLIC AND STATE INSTITUTIONS			
Tuvalu Electricity Corporation	- Responsible for generating and supplying power (electricity) to commercial and residential sectors on Funafuti and the outer islands.	- New Member of the NCCCT - Heavily dependent on the use of fossil-fuel (diesel) and biggest single consumer of imported fuel in the Tuvalu	- Consultations on strategies for reducing risks of damages including placing all new lines underground , reducing fossil fuel usage and promoting for energy efficiency and energy conversion studies. Active in public sector promotions and awareness in energy efficiency programmes.

NON-GOVERNMENT NGOs			
TANGO	- Responsible for central administration and support to all NGO including environmental NGOs in facilitating numerous community based programmes and including environment programmes	- New member of the NCCCT - Assist through their community based network to promote awareness, training and dissemination of information on climate change issues.	- Consultations on TANGO strategies for climate change community awareness and training programmes in the preparation of second national communication.
Island Care	- Responsible for facilitating numerous community based environment programmes and assisted in the initiation of a Climate Change Action Network -Responsible in promoting public awareness in environmental programmes and advocacy for specific environmental issues.	- Climate Change Action Network member to promote awareness and dissemination of information. A member of TANGO and contributor to NAPA consultation process	- Consultations on strategies for climate change community awareness; training programmes especially Vulnerability and adaptation assessments in the preparation of the second national communication.
Tuvalu National Council of Women	- Responsible for facilitating numerous community based and national social development programmes. It has expanded their interests into community-based environmental programmes including coastal vegetation planting	- A major contributor to the NAPA process - Assisted Tuvalu in the preparation of Initial National Communication A member of TANGO and Assisting the Tuvalu to prepare community vulnerability assessments	- Consultations on strategies for climate change community awareness and training programmes in the preparation of the second national communication.
Tuvalu Red Cross	- Responsible for providing disaster and emergency capacity buildings including trainings. -post disaster and emergencies relief activities.	- Member of the NCCCT - Conduct risk assessment and disaster preparedness trainings using tools such as Vulnerability Capacity Assessment and does climate change awareness at local communities' level. Promotes the strengthening and building the capacity of local disaster management stakeholders starting with NDMO.	-Consultations on further collaboration with ED/MNRL on community vulnerability and adaptation assessment, especially in the Outer Islands -Promote strengthening of disaster management offices nationwide.
Kaupule (local council)	- Responsible for traditional decision-making at all levels of Tuvalu Society	- Strong advocates for sustainable development and the protection and preservation of traditional and cultural heritage. Enforcement of traditional conservation systems that improve the resilience of ecosystems to climate impacts	- Consultation on the promotion of linkages between sustainable development and climate change at various levels of society.

I. MAIN OUTCOMES OF THE STOCKTAKING, INCLUDING PRIORITIES IDENTIFIED

Phase 1: Consultation with Government Departments

The consultation with Government Department undertaking in October 2005 explored a number of themes and identified areas for further work in consideration of the Second National Communication

1. Description of development priorities, objectives and circumstances

The key development priorities of Tuvalu are identified in a number of policy documents. Key documents and their relationship to climate change were identified during the consultation with Government Departments and include:

KAKEEGA II

The ERPD has produced Kakeega II which is a national plan relating to the Millennium Development Goals. This is the national plan for Tuvalu and forms the basis for all sustainable development planning in the country.

Information gaps: It was recognised during the consultation that Kakeega II needed to elaborate further on linking sustainable development aspirations with climate change issues. (Note: This issue was taken up in the second phase of the stocktaking process, leading to the National Blueprint on Climate Change).

What Assistance will be required to provide the necessary information?

A national climate change awareness workshop held in 2006 and provided an opportunity for some of the informal gaps to be resolved. Nevertheless further work needs to be done and this will be undertaken within the 2NC process by means of a series of workshops on each of the islands of Tuvalu.

10 YEAR REVIEW OF THE BPOA

The 10 year review of the Barbados Programme of Action on the Sustainable Development of Small Island Developing States was undertaken by the EPRD and was in the form of a national workshop. This workshop provided a number of recommendations associated with climate change and these will be incorporated into the Second National Communication

Information gaps:

The International Meeting to review the BPOA produced the Mauritius Strategy for Implementation (MSI). To date the government has not produced a formal response to the MSI and this will need to be developed and incorporated into the 2NC.

What Assistance will be required to provide the necessary information?

The government needs to establish a consultation process to review national options for implementing the MSI. Some facilitation assistance may be required to undertake this work.

NATIONAL DISASTER PLAN

The government through its National Disaster Office has produced a National Disaster Plan. Emphasis is given in this plan to the impacts of severe weather events and drought.

Information gaps:

There is a need for the preparation of baseline studies and in mapping vulnerable locations.

What Assistance will be required to provide the necessary information?
Assistance in satellite photo interpretation and mapping may be needed.

EDUCATION MASTER PLAN:
The Education Master Plan produced by the government does incorporate some elements of environmental studies within the curriculum.

Information gaps:
Specific information on climate change is lacking and needs further development and incorporation into the curricula.

What Assistance will be required to provide the necessary information?
Information support from local and regional NGOs (particularly WWF Pacific) could assist greatly in providing materials and developing curricula that relate to climate change.

COMMUNITY FISHERIES MASTER PLAN
The Community Fisheries Master Plan (CFMP) is in the process of being developed, with the assistance of the Secretariat of the Pacific Community (SPC).

Information gaps:
At this stage issues relating to the impacts of climate change have not been directly incorporated into the plan though there are direct linkages with adaptation strategies and closure areas for community fishing.

What Assistance will be required to provide the necessary information?
Further assistance from the SPC and SPREP may be needed to incorporate climate change adaptation strategies into the CFMP.

INTEGRATED WATER PLAN
The Integrated Water Plan (IWP) has been developed by the Department of Works in collaboration with the International Waters Project Officer and the National Adaptation Plan of Action Officer under the Environment Department.

Information gaps:
The status of water supplies under various climate change scenarios requires further consideration and elaboration.

What Assistance will be required to provide the necessary information?
Further collaboration between the Department of Works and the Environment Department is needed. Further surveys of water supplies are necessary and external assistance may be required in undertaking these surveys.

ENERGY POLICY
The government is in the process of revising its Energy Policy to take into account energy needs and an interest in reducing greenhouse gas emissions.

Information gaps:
While numerous surveys have been undertaken to find the most appropriate renewable energy technology for Tuvalu no concrete proposals have evolved. An option of incorporating photovoltaic electricity into the grid system on Funafuti has been seriously considered and

available funding is being sought.

Information gaps:
Other forms of renewable energy, such as bio diesel from coconuts, need further assessment. Appropriate technology to develop the bio diesel is needed with further studies necessary to find the most appropriate system for renewable energy production.

What Assistance will be required to provide the necessary information?
Further assistance from SOPAC, SPREP and other technical advisors will be necessary to develop the most appropriate energy mix for Tuvalu.

2. Description of existing institutional arrangements for preparing communications continuously
The Meteorological Office has participated in the calculation of greenhouse emissions in the first national communication and assisted in the preparation of the 1NC. The NAPA Office has been undertaking extensive surveys with respect to the preparation of the NAPA. This work will be extremely valuable in the preparation of the 2NC.

Information gaps:
There is limited capacity within Tuvalu to undertake a thorough analysis necessary for the SNC. Information with respect to greenhouse gas inventories will need further elaboration as little work has been done since the 1NC.

What Assistance will be required to provide the necessary information?
External assistance will be required to assist Tuvalu undertake its 2NC. This will be sought with the assistance of SPREP and other consultants as appropriate.

3. Estimation of national GHG Inventories for '90, '94, 2000, depending on circumstances
Greenhouse gas inventories (main sources of emissions and removals, data sources, adequacy and reliability, accessibility, availability and management of data, capacity needs and constraints);
As indicated earlier the Met Office has assisted in the preparation of greenhouse gas emissions inventories. Further to this the Energy Department has statistics with respect to fuel used for electricity generation.

Information gaps:
There is little information with respect to emissions and removals from land use, land use change and forestry (LULUCF) sectors. A considerable amount of work will be required to undertake estimates from these sectors. This was recognised as a major limitation in the 1NC.

What Assistance will be required to provide the necessary information?
External assistance will be required to undertake estimates of greenhouse gas emissions, particularly from the LULUCF sectors.

4. Description of steps taken towards formulating programs containing measures to facilitate adequate adaptation
(vulnerable sectors, gaps and uncertainties, methods and tools for assessing adaptation options, capacity needs and constraints, priorities for adaptation in the 2NC);
Considerable work has been undertaken with respect to identifying urgent and immediate adaptation needs under the NAPA process. This will make a valuable contribution to the 2NC process. Work undertaken in the preparation of the National Disaster Plan has also been helpful in developing an understanding of vulnerability and adaptation needs.

Information gaps:
There is a clear need for longer term adaptation planning and vulnerability assessments. These are issues not necessarily picked up in the NAPA process. More elaborate information sources including the use of high resolution satellite photos to assist in the preparation of baseline studies and in mapping vulnerable locations are needed.

Developing adaptation technologies to deal with the particular vulnerabilities of Tuvalu requires further work. Tapping into the Clearing House Mechanism to find the most appropriate and environmentally responsible adaptation technologies will be necessary.

What Assistance will be required to provide the necessary information?
Further information support will be needed to interpret and map satellite photos. Assistance in the establishment of baseline studies will also be required. Tuvalu will need to draw on the expertise of people who have had experience in developing adaptation technologies. The Expert Group on Technology Transfer may be able to assist in this process.

5. Description of steps taken for formulating programs containing measures to mitigate climate change
(measures to mitigate climate change (main sectors, methods and tools, priorities to be addressed, and the linkages to the other development priorities)
Various studies have been undertaken to develop renewable energy options for Tuvalu. These have been carried out under the auspices of the SOPAC energy programme and SPREP PIGGAREP project. While studies have been carried out, little support has been gained to actually fund renewable energy projects in-country. An attempt was made to develop a methane digester from pig waste however this project failed due to poor design. A larger project is being considered by the International Waters Project.

Information gaps:
Further information is needed to determine greenhouse gas emissions from all sectors. Of particular note are emissions from bunker fuels. As Tuvalu holds a shipping registry consideration will need to be given to whether or not it is responsible for emissions from ships held within its register. Further assessment work is need to assess emissions from livestock, notably pigs.

What Assistance will be required to provide the necessary information?
Considerable assistance is required to develop technologies to reduce greenhouse gas emissions.

6. Information on integrating climate change considerations into social, economic and environmental policies and actions
As indicated in the earlier section, the consultation with government departments identified a number of strategies undertaken by the government which have linkages to climate change. Further work is required in each of these strategies to make the necessary links with climate change action. This will be a major component of the 2NC.

7. Information on transfer of, and access to environmentally sustainable technologies (ESTs) and know-how, development of endogenous capacities; measures to enhance enabling environment for transfer of technologies
(technology needs and other technology transfer-related issues, PICCAP Phase II outcomes,
The knowledge base on modern environmentally sustainable technologies is limited within Tuvalu and is an area that requires considerable development. Traditional adaptation technologies are well documented under the NAPA process but may need to be elaborated further for the 2NC

8. Information on Climate Change research and systematic observation
Work on systematic observation is primarily undertaken by the Meteorological Office. This work is done in collaboration with NIWA in New Zealand. Despite these efforts, the Met Office has very limited resources and requires further development.

9. Information on climate change education, Training and Public awareness
The Education Department is undertaking in-service training for teachers on sustainable development issues, including climate change. This has been augmented by a national climate change awareness workshop organised by the Environment Department and World Wide Fund for Nature – Pacific. Despite these efforts more work needs to be done so that the formal and informal education sector has good access to information on climate change. The participants at the consultation with government offices identified UNICEF and UNESCO as a possible sources of information.

10. Information on efforts to promote information sharing and networking
The National Climate Change Country Team was identified as the major source of information sharing and networking. However a number of limitations were identified in this process. Primarily the networking is carried out among the government departments with little information flow to the non-government sector. Furthermore information sharing and networking was primarily undertaken on Funafuti with the other islands missing out on this process. Further work is necessary to elaborate strategies for information sharing in communities outside of Funafuti.

11. Constraints and gaps and related financial, technical and capacity needs, and activities for overcoming gaps and constraints for national communications, and climate change measures and programs
The National Capacity Self Assessment is currently undertaking a review of constraints and gaps in relation to capacity needs within the country. Preliminary findings suggest that there are substantial capacity development needs within Tuvalu, particularly in relation to matters associated with climate change. The 2NC will help identify these gaps further and propose means of bridging these gaps.

12. Financial resources and technical support provided by various sources
Gaining access to funding sources, particularly the GEF was seen as a major constraint for Tuvalu. As indicated in the OP3 of the GEF, small island developing States have particular problems in accessing funding through the GEF. This relates to a number of constraints included lack of capacity and knowledge to develop funding proposals. Tuvalu through its participation in climate change COPs has attempted to highlight this issue and to encourage simplified and expedited procedures for SIDS with respect to funding under the GEF.

Tuvalu also faces other constraints with respect to funding on matters related to climate change. It has not been able to access funding through the Clean Development Mechanism due to low emissions and high transaction costs associated with the CDM. Sourcing other financial resources to undertaken emissions mitigation activities has been difficult due to the small size and lack of investment opportunities.

With respect to adaptation funding, Tuvalu has also experience limitations and constraints. Again this relates to capacity issues and a lack of willingness by donor countries to develop expedited procedures for adaptation funding. Hopefully these constraints will be resolved in the near future.

13. List of projects proposed for financing or in preparation for arranging technical/financial support

The National Climate Change Awareness Workshop provides the primary source of project proposals and these are listed in the following section (see Phase 2)

14. Opportunities, barriers for implementation of adaptation measures, including pilot and/or demonstration projects

In the development of the NAPA proposal, the government identified a number pilot projects to be carried out. These included:

1. Coastal vegetation planting pilot
2. Pig waste pilot project
3. Water catchment pilot project
4. Coral reef restoration project

Each of these projects was rejected within the NAPA process as they were not considered to be enabling activities. This makes it extremely difficult to develop baselines and to develop appropriate adaptation activities without some field testing. Therefore the implementation of pilot and demonstration projects has been limited. Furthermore Tuvalu has not received funding from regional adaptation pilot projects (initiated by SPREP and SOPAC) that other Pacific Island countries have participated in. It is unclear why Tuvalu was not selected for these programmes considering the high vulnerability of the country to the impacts of climate change.

15. Country-specific technology needs and assistance received from developed country Parties and the GEF, and how assistance was utilized

Tuvalu has received very limited technology support from developed country Parties with respect to matters associated with climate change. The government was involved in a waste management project initiated by AusAID. While this project was limited to Funafuti, it has been noted that some of the project activities have strong linkages to adaptation technologies and will hopefully be developed for the other islands – subject to the availability of funding. To date most if not all funding from the GEF has been to support enabling activities. This includes programmes under International Waters, POPs, Montreal Protocol and NAPA. Virtually no money has been received to undertake projects on the ground.

Phase 2: National Climate Change Awareness Workshop

In February 2006 the Environment Department in collaboration with the World Wide Fund for Nature- Pacific held a National Climate Change Awareness Workshop. The workshop included participants from governments, members of parliament, the private sector, Kaupule (local council), international organisations, researchers and non government organisations. The workshop was based on a number of presentations by in-country experts and some external experts including Tuvalu's Ambassador to the United Nations. The workshop divided into break out groups and these groups elaborated actions needed to be undertaken to address climate change issues. These action lists were compiled and became the National Blueprint on Climate Change. These provided Phase 2 of the Stocktaking Exercise and the details of the Blueprint are presented here:

APPENDIX B: TECHNICAL COMPONENTS OF THE PROJECT PROPOSAL

1. BACKGROUND/CONTEXT

Having ratified the UNFCCC, Tuvalu is obliged to prepare and submit its National Communications to the UNFCCC. The Tuvalu has completed and submitted its Initial national communication on 30 October 1999, which comprised of a national inventory of anthropogenic emissions by sources and removal by sinks of all greenhouse gases not controlled by the Montreal Protocol, and national plans of action to implement the Convention. Ratification of the UNFCCC is one step forward in terms of commitment to addressing climate change and related issues. The country has also ratified the Kyoto Protocol on 15 November 2000.

As a small island developing State, Tuvalu faces challenges that are common amongst other small island States in relation to sustainable development, especially the interplay of such factors as smallness , remoteness, geographical isolation, vulnerability to natural disasters, the fragility of ecosystems, constraints on transport and communication, isolation from markets, vulnerability to economic as well as environmental shocks, lack of natural resources, limited fresh water supplies, heavy dependence on imports, and migration (particularly of personnel with high level skills,). Tuvalu continues to endure high costs for energy, infrastructure, transportation, communication and access to other services.

The INC has facilitated the development of local climate change expertise, enhanced the institutional capacity, and increased the awareness of public and institutions concerning the UNFCCC and the global warming issues. During the preparation of the 1NC, Tuvalu established a National Climate Change Country Team consisting of senior officials from the relevant government entities to carry out the INC activities as well as to lead the national efforts in addressing the climate change issues in general.

After completion 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. A number of national environmental and related policies have been prepared and adopted by the Government, to guide the implementation of initiatives that address environmental issues, including climate change**.**

Tuvalu is now (through this proposal) seeking to prepare and submit its Second National Communications (2NC) to the UNFCCC. The activities within the 2NC are continuation of, and an improvement of the work done under 1NC. During the duration of the project, particular attention will be put on addressing identified gaps and constraints during the 2NC stocktaking exercise, making good use of the information derived particularly from the National Blueprint on Climate Change.

2. PROJECT OBJECTIVES

The proposed project aims to strengthen the technical and institutional capacity of Tuvalu in mainstreaming climate change concerns into the country's sectoral and national development planning processes. It is primarily for the purpose of preparing and submitting its Second National Communication to the UNFCCC thereby meeting its obligations to said convention.

3. PROJECT STRATEGY

4. PROJECT ACTIVITIES

4.1. NATIONAL CIRCUMSTANCES

Information provided on national circumstances is critical for understanding Tuvalu' vulnerability to the adverse effects of climate change, its capacity and its options for adaptation, as well as its options for addressing its GHG emissions within the broader context of sustainable development.

Information on national circumstances will include the analyses of national and or regional development priorities and objectives that Tuvalu is pursuing and those that would serve as the basis for addressing climate change and sea-level rise issues. Information on national circumstances will be linked to information provided in other chapters of the national communication. The analyses of development priorities and objectives should be of interest to other national stakeholders investigating the benefits of specific activities and policies and the linkages between the activities and policies relating to climate change and those of other Conventions, such as the CBD and the UNCCD.

Information will include:

1 Geographical characteristics, including climate, forests, land use and other environmental characteristics,
2 Population: growth rates, distribution, density and other vital statistics;
3 Economy, including energy, transport, industry, and tourism, agriculture, fisheries, waste, health and services sector,
4 Education, including scientific and technical research institutions,
5 Any information considered relevant by the Party, e.g. information relating to Article 4.8 and 4.9, of the Convention
6 A description of institutional arrangements relevant to the preparation of the national communications on a continuous basis including distribution of responsibilities within government departments, universities, research institutions, etc.
7 National Climate Change Country Team as a relevant coordinating body
8 Involvement and participation of other stakeholders;
9 Cooperation and partnerships with various other activities thereby promoting and strengthening synergy;
10 Thematic Working Groups on GHG inventory, vulnerability and adaptation assessment, mitigation, etc.
11 Description of institutional arrangements relevant to the preparation of the second national communication

12 The need to develop and implement a National Climate Change Policy and Implementation Plan as a medium term framework for guiding future climate change and other related initiatives which will forge better linkage, cooperation and collaboration between UNFCC, CCD, CBD, IWP and other national programmes.

4.2. GREENHOUSE GAS (GHG) INVENTORY

GHG inventory is a key element of the national communication, as it forms the basis for climate change mitigation measures. A reliable and accurate GHG inventory will also be very useful for the formulation of any projects under the Clean Development Mechanism (CDM) of the Kyoto Protocol, so that appropriate baseline for emission reduction can be determined.

Proposed Activities

On the basis of the previous inventory and following further training, national GHG Inventory for

direct greenhouse gases carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O) and for indirect greenhouse gases carbon monoxide (CO), nitrogen oxides (NOx) and non-methane hydrocarbons (NMVOC), as well as sulfur dioxide (SO_2), will be undertaken for the year 2000 and 2005 in five source categories Energy (i.e., fuel combustion, energy industries; transport; residential; solid fuels), Industrial Processes, Agriculture (i.e., enteric fermentation from domestic livestock; manure management; agricultural soils and field burning of agricultural residues), Land-Use Change and Forestry (i.e., changes in forest and other woody biomass stock; forest and grassland conversion; abandonment of managed lands) and Waste (i.e., solid waste disposal on land; wastewater handling; human sewage), using the IPCC 1996 Revised for National Greenhouse Gas Inventories.

A key-source analysis will be carried out to determine the sectors with significant emissions where resources can be targeted. This activity will also include training in and capacity building on the use and application of the IPCC 1996 Revised for National Greenhouse Gas Inventories, the IPCC Good Practice Guidance on National Greenhouse Gas Inventories and Uncertainty Management, and the IPCC Good Practice Guidance on Land Use, Land Use Change and Forestry and related applications of geographic information systems and remote sensing techniques.

Existing data management systems will be strengthened to ensure preparation of good quality inventories over the long term. Emissions of methane and nitrous oxide from international bunkers and aviation will also be estimated for the year 2000 and 2005. The activity data of hydro fluorocarbons (HFCs), per fluorocarbons (PFCs), and sulfur hexafluoride (SF_6) will also be collected for the same period where available.

An improved factor of CO_2 emission/sink from/to soils in Land-Use Change and Forestry (LUCF) in the Pacific region with similar conditions to Tuvalu will be assessed and identified, as well as methane emission factor from agricultural soils, with a view to reducing the uncertainties and enhancing the data quality in these sources and sinks. Given the recent experiences with land-based pollution in the reef lagoons, the use of pig waste digesters effectiveness of minimizing discharge of carbon dioxide and methane effluents into the lagoon environment needs to be accounted for.

Procedures on quality assurance and quality control (QA/QC) based on the IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories will be applied, as appropriate, to ensure that the results of the inventory will be as reliable as possible. The reduction of uncertainties in the national GHG inventory will allow the consideration of national priorities for mitigation measures and the effective use of limited financial resources. It will fill in gaps of the previous inventories, especially in the Land-use change and forestry sector.

While the database for carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4) oxides of nitrogen (NOx), carbon monoxide (CO), non-methane volatile organic compounds (NMVoC) and sulphur dioxide (SO_2) will be updated, a new database for hydro fluorocarbon (HFCs), per fluorocarbon (PFCs) sulphur hexafluoride (SF_6) (where available) will be established. A user-friendly database system will be developed for these gases and their emission factors for ease of archiving, updating and maintenance. To this end, a manual on the database and its use will be developed.

Tables 1 and 2 as provided by the UNFCCC (annex to decision 17/CP.8) will be used for reporting the national GHG inventory. This activity will be coordinated with any regional efforts wherever possible.

At the end of the proposed activities, a national workshop will be held to review the results. Policy

makers and other stakeholders will be invited to participate in the workshop, so as to enhance their awareness on the importance of GHG inventory, which should be taken into consideration in national development planning. If possible, a long-term programme on the improvement of future GHG inventories will be developed.

The Thematic Working Group (TWG) on GHG Inventory will be responsible for national greenhouse gas inventory. Further capacity building for the group on the application of IPCC methodology, including data collection, analysis and management, is needed, as there will be new members engaged in the team. In addition, a training workshop on IPCC Good Practice Guidance and Uncertainty Management in National GHG Inventories will be conducted for the TWG.

The capacity-building activities may include the participation of the TWG on GHG Inventory, in the sub-regional, regional and international training workshops on GHG inventory, so as to gain from exchange of experiences and lessons learned with other countries. It is hoped that this team will be maintained in a sustainable manner even after the completion of the project cycle.

Major Outputs and Indicators

The major outputs and indicators of this component will be:

1 Establishment of thematic working group on GHG inventory;
2 Updated and improved inventory data for CO_2, N_2O, CH_4, CO, NOx, NMVoC and SO_2, and new inventory data for HFCs, PFCs and SF_6 for the year 2000 and 2005;
3 An improved methodology for collecting, analyzing and archiving GHG inventory data;
4 An updated, improved and user-friendly GHG inventory database including database on waste.;
5 An updated GHG inventory report, including technical annexes that detail the inventory procedures and calculations;
6 Further identification of shortcomings and gaps of the IPCC in relation to the local conditions;
7 A description of any original research needed to develop and/or apply new emission factors for specific sectors;
8 Recommendations on areas of targeted research to improve future inventories and to suggest revisions to the existing IPCC GHG inventory methodology;
9 Information shared with relevant projects and organisations
10 Strengthened human, scientific, technical and institutional capacity to undertake a GHG inventory; and,
11 The review workshop report, including major papers presented.
12 An updated inventory report incorporated into the second national communication.

4.3. Programmes Containing Measures to Facilitate Adequate Adaptation to Climate Change

This component of the project will address gaps that were identified during the 2NC stocktaking exercise regarding previous work on vulnerability and adaptation assessments during the INC.

Proposed Activities

Based on previous work, a comprehensive integrated vulnerability assessment is to be undertaken for key socio-economic sectors, such as coastal zone and reefs, agriculture, land-use change and forestry, water resources, health, fisheries, biodiversity, food security, public infrastructure, tourism, trade and industry and culture/tradition.

Relevant global and/or regional circulation models may be used to construct climate change scenarios for the region that includes Tuvalu. Where possible, integrated assessment modelling may be used to assess the impacts of climate change in the Tuvalu. An integrated Water Evaluation and Planning System (WEAP mode) may be used to simulate water demands and supplies. Based on these quantitative analyses, appropriate cost-effective adaptation options and measures are to be assessed. The impacts of climate change on national development strategies; plans and programmes will be evaluated. Appropriate policy options will be identified and developed for response strategies.

Two of the possible major impacts of climate change are the shift in seasonal and latitudinal rainfall patterns, and the increase in extreme weather events, both of which could have significant implications for Tuvalu in terms of tropical storms and drought. In addition, the frequency, persistence and magnitude of El Niño are projected to increase under the climate change scenario. El Niño induced drought in Tuvalu and many parts of the western Pacific. In view of these projected scenarios, further assessment of vulnerability will be carried out focusing on specific sectors using outputs of regional circulation models and targeted research.

Much of early work has focused on vulnerability and adaptation assessments, which identified a number of critical actions and measures that could contribute to enhancing adaptive capacity and towards achieving adequate adaptation to climate change. The preparation of initial national communication, and the NAPA process have highlighted many of the needs and concerns relating to vulnerability and adaptation, including the need:

1 To enhance networking and information sharing/exchange amongst all stakeholder i.e. NGO's, private sector, Government, communities and the general public to develop appropriate measures to address climate change, including climate variability and sea-level rise.
2 To strengthen the institutional arrangements and enhance capacity to support efforts in addressing issues and concerns relating to climate change. Recommended areas including information dissemination through communication networks and public outreach, training, strategic planning and participatory consultation workshops, the creation of expert panels to provide technical information as well as logistical support, equipment and materials.
3 To review existing laws and legislation to assess their appropriateness in accommodating vulnerability and adaptation to climate change for key sectors and communities.
4 For conservation and protection of breeding grounds and habitats and species that are considered vulnerable to impacts of climate change and human activities. Results from past flora and fauna surveys of the Tuvalu will facilitate the identification of vulnerable areas.
5 To carry out studies on the impacts of climate change including variability, climate extremes and ENSO on the fisheries and tourism sectors.
6 To improve water management efforts with better supply-side and demand-side management. This should also include national campaigns and education on water quantity and quality issues and associated risks posed by climate extremes, as well as the importance of water storage and tank maintenance with increasing variability under climate change;
7 To establish a Climate Change Database to collect data on sectors and relevant indicators to monitor and evaluate climate change and impacts;
8 To undertake studies on the vulnerability of climate change on Tuvalu Trade and Industry sector and its overall impact on international trade.
9 To promote integrated planning or zoning to decentralize utilities and operations from being concentrated where they are exposed to coastal flooding and erosion and sea level rise as well as the promotion of Integrated Coastal Zone Management in managing coastal resources.
10 To improve climate monitoring, research and systematic observation, develop and manage

databases necessary for vulnerability and adaptation assessment and to enhance the capabilities and capacities of experts and institutions in the use and applications of analytical, integrated and process-based methods and tools for adaptation.

NAPA provides a good basis for developing a policy framework for undertaking adaptation that is country- driven, economically viable and socio-culturally sensitive to the needs and concerns at the various levels of integration of society. The preparation of the vulnerability and adaptation assessment will build on these frameworks, plans and experience in enhancing adaptive capacity and improving the coping strategies of communities.

Although a lot of information has been generated in the area of vulnerability and adaptation assessments during the 1NC and NAPA processes, a lot of gaps still exist in the area of data collection, monitoring, expertise, skills and know-how required to conduct vulnerability and adaptation assessments in other islands, sectors and communities on a continuous basis. Therefore there is an urgent need for training and capacity building in the following areas:

1 Development and use of appropriate methodologies and tools for conducting vulnerability and adaptation assessments at the community, national and sectoral levels. The training would include downscaling of global circulation models to reflect projected changes in specific sectors and or communities within timeframes that are relevant and appropriate for decision-making.
2 Enhance the capacity of communities to identify capacity building and training needs as they relate to vulnerability and adaptation assessments. This could build on the community vulnerability and adaptation assessments currently being carried out in several communities.
3 Research, systematic observation and data collection, analysis and dissemination.
4 Assessment of the climate change in Tuvalu, including the analyses of variability, trends and impacts;
5 Strengthen existing and where appropriate develop data management systems to ensure that a vulnerability and adaptation assessment is carried out on a broader and continuous basis.
6 Evaluation (including cost-benefit analysis), prioritization and costing of adaptation options, strategies and measures.
7 Further incorporation of vulnerability and adaptation assessment work into development planning. This would include risk-based assessment methods such as in the integration of climate change risks into environmental impact assessment processes, and means of addressing climate change threats to sustainable development in the Tuvalu.
8 Assessment of existing water resources and its implications for other socio-economic sectors;
9 Assessment of the impacts of climate change on oceanographic processes and ocean productivity;
10 Assessment of the reef systems and associated resources for better management of reef resources which are the main sources of protein source for Tuvalu (food security), including the monitoring of the reefs and climate change-related impacts like coral bleaching and algal blooms,.

Based on the above assessments and the 2NC will facilitate the identification for development of adaptation options and strategies, for key socio-economic sectors. This will include: (i) the review of both analyses of measures and technologies for minimizing damages and for mitigating negative impacts of climate change; (ii) the identification of interdependencies between key socio-economic sectors, and their sub-sectors, as well as between public and private sectors; (iii) the identification of least-cost adaptation measures; (iv) a climate change-induced disaster prevention, and management plan; (v) development of special information materials (e.g., maps, diagrams, decision matrices) for policy makers; (vi) list of high priority measures recommended for inclusion in

sustainable development strategies; (vii) analysis of barriers and necessary activities for integration of adaptation measures in the mid- and long-term national development plans.

At the end of the assessment, a workshop will be held to review the results that build on existing and evolving needs and priorities. Policy makers and other stakeholders will be invited to participate in the workshop, so as to enhance their awareness on the various adaptation options, which should be taken into consideration in national development planning.

The Vulnerability and Adaptation Thematic Group will undertake the above tasks, using methodologies that they consider better reflect the national situation, as well as existing methodologies and such as the *IPCC Technical for Assessing Climate Change Impacts and Adaptations* (Carter et. al., 1994); the *UNEP Handbook on Methods for Climate Change Impact Assessment and Adaptation Strategies* (Feenstra et al., 1998); the *International Handbook on Vulnerability and Adaptation Assessments* (Benioff et al., 1996); *Developing Socio-Economic Scenarios for Vulnerability and Adaptation Assessments*;; the *MAGICC/SCENGEN Climate Scenario Generator: Version 2.4, Technical Manual* (Wigley et al., 2000); and the *Compendium of Decision Tools to Evaluate Strategies for Adaptation to Climate Change* (see www.unfccc.int/issues/meth_tools.html) and other regional methodologies such as model and where appropriate, other methods to be used will include community vulnerability and adaptation assessment methodologies.

A thematic working group on vulnerability and adaptation assessment will be responsible for carrying out the assessment work. The group will be supported by the experience and lessons learned by the 1NC NCCCT, and NAPA teams.

The capacity for this group on the application of the above-mentioned methodologies, including data collection, analysis and management, will be further strengthened and enhanced where necessary. The capacity-building activities will include the participation of the selected team members in sub-regional, regional and international training workshops on vulnerability and adaptation assessment, so as to share experiences and lessons learned with other countries. It is hoped that this team will be maintained in a sustainable manner even after the project cycle.

Major Outputs and Indicators

The major outputs and indicators of this component will be:

1 Strengthened and/or developed human, scientific, technical and institutional capabilities and capacities to undertake vulnerability and adaptation assessments;
2 Identification of targeted research on climate change, tropical , drought and precipitation trends and their relationship with El Niño-Southern Oscillation phenomenon;
3 A wide range of stakeholders will be involved in the preparation of vulnerability and adaptation assessments. The involvement and participation of communities in the assessment work will ensure heightened awareness of the risks imposed by climate changes and also facilitate development of adaptation options, strategies and measures that would be viable and culturally acceptable.
4 An improved, and/or better understanding of the key vulnerabilities and the risks imposed by climate change on various sectors, communities and infrastructure;
5 Identification of adaptation options for key vulnerable sectors;
6 An analysis (i.e., cost-benefit analyses, evaluation and prioritization) of the various adaptation options, strategies and measures for key/priority socio-economic sectors based on established methodologies, including possible least-cost adaptation options and adaptation technologies;
7 Policy options for adequate adaptation and response strategies for climate change impacts on

key socio-economic sectors, including a draft National Climate Change Adaptation Action Plan to compliment the NAPA;

8 Further activities, gaps, constraints and research needs, as well as specific financial, technical and institutional and research needs for capacity-building will be identified and highlighted;

9 The review workshop report, including major papers presented.

4.4. PROGRAMMES CONTAINING MEASURES TO MITIGATE CLIMATE CHANGE

Although Tuvalu is not required to take on emission reduction commitments within set timeframes, undertaking climate change mitigation and assessment could provide ancillary benefits for sustainable development, such as increase in technological efficiency and effectiveness, improvements in the security and availability of power supply, reduction in road congestion when a shift from private to public transport takes place, and increase in employment resulting from mitigation projects.

Mitigation assessment entails the generation of information on the national or regional analysis of the potential costs and impacts of the various technologies and practices to mitigate climate change. This information should be relevant for sustainable development and useful for policy makers, and should also help formulate and prioritize mitigation programmes.

Proposed Activities

In order for Tuvalu to undertake mitigation assessment as part of its development strategy, the Thematic Group on Mitigation will carry out a number of pertinent activities including *inter alia*:

1 Collection, collation, analysis and archiving of data for the different sectors of the economy, where appropriate and relevant;

2 Training and capacity building for national experts and institutions to undertake the preparation of the mitigation assessment;

3 Training of personnel in the use of methods, models and tools for the generation of climate and socioeconomic scenarios, at both the national and sectoral levels;

4 Preparation of mitigation projects for funding including energy audits, energy efficiency and energy conversion programmes and co-generation from the hybrid system.

5 Information from regional initiatives such as PIGGAREP, REEP, etc are adequately reflected in the 2NC.

Training and capacity building is required in the use of appropriate technologies, methodologies and tools for assessment of mitigation options and development of mitigation scenarios particularly in sectors with significant mitigation potential.

Several methods and models that may be used in mitigation assessment, ranging from a broad description of main development trends and statistics to formalized modeling at sector and macro-economic levels. Many of these methods and models are provided in a number of technical resource such as Such as *Technologies, Policies and Measures for Mitigating Climate Change* (IPCC Technical Paper I); *Greenhouse Gas Mitigation Assessment: A Guidebook by the U.S. Country Studies Program* and *Climate Change 2001: Mitigation* (Contribution of Working Group III to the Third Assessment Report of the IPCC). Given the likely dominance of the energy sector (including transport) in terms of emissions, models such as LEAP, ENPEP and MARKAL can be used to undertake mitigation assessment.

Based on the above analyses, a number of mitigation projects could be developed for bilateral and multilateral funding. These proposals could highlight the barriers for adopting cleaner technologies, as well as for promoting cleaner production and consumption, with a view to guiding the country to become less fossil-fuel dependent. Both legal (e.g., law and legislation) and economic (e.g., tax incentives) instruments may be necessary for promoting mitigation measures. A list of environmentally friendly mitigation technologies, including renewable energy technologies that have been already identified and compiled by various on going energy projects, will be identified and assessed.

At the end of the proposed activities, a workshop will be held to review the results and the draft National Mitigation Strategy for GHG Emission Reduction. Policy makers and other stakeholders will be invited to participate in the workshop, so as to enhance their awareness on the importance of GHG emission reduction, which should be taken into consideration in national development planning.

Much of this work will build on and complement the work already started by the GEF-funded *Pacific Island Renewable Energy Project* (PIREP), which focused on the removal of barriers to the adoption of renewable energy technologies.

The capacity-building for the Mitigation Working Group on the application of the above-mentioned methodologies and models, including data collection, analysis and management, will be further strengthened and enhanced. The capacity-building activities will include the participation of the selected team members in the sub-regional, regional and international training workshops on mitigation assessment, so as to share experiences and lessons learned with other countries. Training workshop on the application of macro-economic models and relevant energy models will be organized with the assistance of both national and, where appropriate, regional or international consultants as well as the use of expertise available from the UN agencies.

Major Outputs and Indicators

The major outputs and indicators of this Component will be:

1 Important baseline data for key socio-economic sectors required for assessing GHG mitigation options;
2 An assessment of mitigation options for key socio-economic sectors based on established methodologies, including possible least-cost mitigation options and environmentally friendly mitigation technologies;
3 A draft Mitigation and Renewable Energy synthesis report of lessons learned from PIREP, PIGGAREP and REEP, including appropriate legal and economic instruments, and public-private partnerships for mitigation measures;
4 Strengthened human, scientific, technical and institutional capacity for mitigation assessment;
5 Further constraints and specific financial, technical and institutional needs for capacity-building on mitigation and renewable energy technologies and on the development of mitigation measures and strategies will be identified and highlighted;

4.5. Other Information Considered Relevant to the Achievement of the Objective of the Convention

4.5.1. Development and Transfer of Technologies

There was no assessment on the development and transfer of technology undertaken during

PICCAP I & II. A workshop on Capacity-Building for Renewable Energy and Energy Efficiency in Small Island Developing States was held in the Cook Islands on 7-11 July 2003, for all SIDS of the Pacific. The workshop called for SIDS to advance their own sustainable energy agenda, and identified the renewable technology applications in Small Island setting as a priority.

Proposed Activities

A technology needs assessment (TNA) will be carried out by the thematic group on Technology Transfer to identify technology needs for adaptation and mitigation. The TNA will be undertaken by using the assessment methodology developed by UNDP. The TNA group will use a six-step process to complete the TNA.

The synthesis report from this assessment will provide input to the chapters on vulnerability and adaptation and mitigation assessments in the Second National Communication.

Thematic working group on technology transfer and research and systematic observation will carry out the following activities relating to technology transfer based on the previous activities and the technology needs assessment (TNA):

1 A comprehensive analysis and assessment of the country-specific technological requirements and opportunities of their use, transfer and introduction in key socio-economic sectors, as well as their social, economic and environmental impacts for adaptation and mitigation;
2 Capacity-building and training for the TWG will include learning how to apply the TNA methodology and the use of appropriate technology information databases such as the UNFCCC's TT:CLEAR and any relevant information provided by the Centre for Technology Information.
3 The barriers to the adoption of environmentally-sound technologies in Tuvalu will be identified, with a view to facilitating their removal.
4 Various public awareness programmes focusing on the benefits of ESTs (e.g., CFL rather than incandescent lights, eco-labeling, use of "star-rated" consumer appliances, etc) and a number of demonstration technology projects will be implemented in communities/villages.

The feasibility of other technological options, such as cogeneration of power by means of grid-connected solar systems that do not have battery storage; and the use of windmills to supply electricity (assuming that a more wind farms will come on line in the near future) will be assessed and evaluated.

It is necessary to build or strengthen the human, scientific, technical and institutional capacity for identifying, assessing, designing, developing, monitoring, evaluating and hosting technological projects, including targeted research projects, for bilateral and multilateral funding.

Selected members of the thematic working group on Technology transfer and research and systematic observation will participate in relevant sub-regional, regional and international training workshops and conferences to share experiences and lessons learned, as appropriate.

At the end of the proposed activities, a workshop will be held to review the results and outcomes, of technology needs assessments, which will serve as important inputs for both the National Action Plan on Adaptation and the National Mitigation Plan.

Further constraints and specific financial, technical and institutional needs for capacity-building on development and transfer of technologies in Tuvalu will be identified and highlighted.

Major Outputs and Indicators

The major outputs and indicators of this Sub-Component will be:

1 Completion of technology needs assessment;
2 Completion of a TNA synthesis report including priorities for adaptation and mitigation;
3 Important inputs for both the National Action Plan for Adaptation and the National Mitigation Plan;
4 Technology information networks;
5 Strengthened human, scientific, technical and institutional capacity;
6 The reports of the review workshop, including a draft report on development and transfer of technologies in the Tuvalu.

4.5.2. Research and Systematic Observation

No assessment was carried out on the research and systematic observation in the Tuvalu during the implementation of PICCAP and Phase II (top-up) enabling activities due to lack of expertise and personnel. However, a Workshop on Systematic Observations and Pacific Islands - Global Climate Observing System (PI-GCOS) was held on 18-19 March 2003. This workshop has identified the technical needs for systematic observations in the Pacific.

Proposed Activities

Within the financial constraint of the present proposed project, the following activities are envisaged:

1 Improvement in data collection, analysis and management, with emphasis on data quality assurance particularly on national population census, national surveys on household expenditure and the SPOT-GIS programme. This activity will build on the data recovery programme supported by the World Meteorological Organization through its South Pacific Sub-Regional Office;
2 Trend analysis in existing temperature and rainfall data;
3 Update the Climate and Weather of the Tuvalu;
4 Establishment of early warning systems for ENSO and tropical as part of the work on vulnerability and adaptation assessment;
5 Analysis of the impact of climate change on the frequency of extreme climatic events including ENSO. This work will also be part of the vulnerability and adaptation assessment work;
6 Analysis of rainfall (including floods and drought) under climate change scenarios, current climate variability including tropical and ENSO. This work will be carried out in close collaboration with the V&A thematic working group;
7 Participation in and contribution to the activities and programmes, as appropriate, of regional and global research networks and observing systems, such as the Pacific Island - Global Climate Observing System (PI-GCOS) programme, which aims to establish a robust and sustainable climate observation and application system that meets the climate change and variability observations and application needs of the Pacific island nations and region and meets GCOS requirements;
8 Climatic information networking with relevant regional and international organizations;
9 Preparation of a draft Synthesis Report on Research and Systematic Observation with special focus on ENSO, tropical and drought, so as to provide technical and policy guidance for a more sustainable programme. The synthesis report will also include constraints, financial,

technical, human and institutional needs for capacity-building needs for the Tuvalu.

The above activities will be undertaken by the Technology Transfer and Research and Systematic Observation Group, which will request input from relevant staff of the Tuvalu Meteorological Department as well as Ministry of Works and Ministry of Natural Resources. The capacity of the study team members will be strengthened where necessary, including the participation in sub-regional/regional/international workshops. Special training in data collection, analysis and management on climate monitoring will also be required.

At the end of the proposed activities, a workshop will be held to review the results and outcomes, including the draft Synthesis Report on Research and Systematic Observation, with the participation of all stakeholders from both public and private sectors, including NGOs, communities and civil societies.

Major Outputs and Indicators

The major outputs and indicators of this component will be:

1 Improved climate database;
2 Specific research relating to ENSO, tropical storms and drought;
3 Early warning systems for ENSO, tropical and drought established;
4 Participation in and contribution to the PI-GCOS programme;
5 Climatic information networks with regional and international organizations;
6 Draft National Strategy for Research and Systematic Observation;
7 Strengthened human, scientific, technical and institutional capacity;
8 The reports of the review workshop.

4.5.3. Education, Training and Public Awareness and Information and Networking

Proposed Activities

Based on the previous activities, the following activities are proposed:

1 Preparation and translation of outreach materials into Tuvaluan (leaflets, booklets, calendars, posters, quarterly newsletters, video, CD-ROM) and dissemination of these materials through mass media (TV, radio, newspapers, magazines , Internet, etc.) and participatory approaches. The information provided by SPREP, IPCC, WMO, IUC/UNEP, UNITAR and the UNFCCC Secretariat through their web pages could be used as sources of information for outreach activities, where appropriate. This activity will build on and foster linkages to education, training and awareness initiatives that are already being undertaken in the Tuvalu.
2 Establishment of a local website for climate change – This will facilitate information dissemination and sharing of experiences and lessons learned among communities. Capacity-building for updating and maintaining this website is essential in order to ensure its sustainability even after the completion of the project;
3 Strengthening of education on climate change at the primary and secondary levels;
4 Development of a Tourism Environment Charter;
5 Development of a communication strategy;
6 Identification of further constraints, gaps and specific financial, technical and institutional needs for capacity-building on public awareness, education and training will be identified and highlighted at the end of the activities.

In order to achieve the above proposed activities, which will be undertaken nationally throughout the various thematic working groups, reasonable financial resources will be needed, not only for both for human and institutional capacity strengthening, but also for the acquisition of relevant equipment.

Major Outputs and Indicators

The major outputs and indicators of this component will be:

1 Educational and public awareness programmes at national and local village levels;
2 Outreach materials in English and Tuvaluan;
3 Strengthened primary, secondary and post secondary school curriculum on climate change;
4 Strengthened human, scientific, technical and institutional capacity;
5 The reports of the review workshop.

4.5.4. Improved Information Technology

Access to, and the use of, information technology, such as Internet, will be essential to ensure efficient exchange and sharing of information both within and outside the country. Information networking is an important activity in any project cycle. However, during the Initial National Communication project, acquisition of computers and access to Internet has been fairly limited due to financial constraints.

Proposed Activities

1 Establishment of list serve for various thematic working groups to facilitate information networking;
2 Participation and contribution to sub-regional and regional information networks on climate change issues, especially those relating to national communications;
3 Provision of a list of national experts, including their expertise, who have participated in the preparation of the second national communication;
4 Assessment of current capacity in information communication technologies;
5 Institutional strengthening, including human resources development, technical and technological capabilities on the use of information communication technology for climate change information sharing.

Major Outputs and Indicators

The major outputs and indicators of this component will be:

1 Information networks and regular exchange of information among thematic working groups and between other countries of the region;
2 Strengthened human, scientific, technical and institutional capacity in information networking.

4.5.5. Capacity-building

Previous Activities

The process of the preparation of the Initial National Communication has highlighted limited human, scientific, technical, technological, organizational, and institutional and resources capabilities in Tuvalu for fulfilling its commitments, including the reporting requirements. Based

on the results of a survey, special capacity-building needs have been identified in the Initial National Communication.

Proposed Activities

Within the constraint of the limited financial resources, this proposal aims to address the specific needs that have been identified in the Initial National Communication to the extent possible, taking into consideration decision 2/CP.7, which provides that "Capacity building is a continuous, progressive and iterative process, the implementation of which should be based on the priorities of developing countries."

As far as capacity building is concerned, it would be appropriate to maximize the synergies for implementing the UNFCCC and other global environmental agreements, such as Convention on Biological Diversity (CBD) and United Nations Convention to Combat Desertification (UNCCD). The NCSA would provide a good basis for such synergies.

Every effort will be made to address some of the priority areas relating to the preparation of national communication (GHG inventory, V&A assessment, technology transfer, mitigation, research and systematic observation) as identified in the initial scope of the capacity building framework of the UNFCCC.

Major Outputs and Indicators

The major outputs and indicators of this component will be strengthened human, scientific, technical and institutional capacity at all levels on relevant activities relating to climate change.

4.6. CONSTRAINTS AND GAPS, AND RELATED FINANCIAL, TECHNICAL AND CAPACITY NEEDS

New gaps and constraints identified during the preparation of the SNC will be reported along with related financial and technical capacity needs. Special attention will be paid to the *previously identified gaps and needs* under the previous activities such as INC and Top-Up. The information will also include descriptions of whether and how these gaps and constraints have been addressed under the SNC and their status. In addition, gaps and constraints while implementing the UNFCCC will be reported.

Main Outputs

7 Status of the constraints and gaps (technical, institutional, methodological, financial, capacity) from previous studies.

8 New constraints and gaps (technical, institutional, methodological, financial, capacity), if any related to each thematic area (inventory, abatement analysis, V&A) and elaborate needs to overcome and fill them.

9 Constraints and gaps (institutional, financial, technical capacity) related to Article 6 activities, Article 4.5 and decision 2/CP.7 which are cross-cutting issue relating to the preparation of SNC. Such needs will be elaborated with a view to finding ways to overcome these needs.

4.7. Technical Support

Although good progress has been made in Tuvalu to develop its human resources there is still a

shortage of staff available to deal with diverse environmental issues. This has a direct effect on the capacity to deliver environmental benefits at the national and local levels. It also affects the capacity of institutions to carry out the required tasks/activities in the preparation of national communication in an effective manner.

In recognition of the capacity constraints a regional support component is being proposed to provide, *inter alia*, technical advice and support (expertise, skills and know-how); nationally-adapted methods and tools; tool-kits, a roster of regional experts who could be used to assist the countries undertake some of the activities relating to the national communication; training and capacity building institutes on various elements of the national communication, and methodologies for prioritization and ranking of adaptation actions/activities.

Regional training, while focusing on vulnerability and adaptation assessments, national GHG inventories, mitigation analysis, should also focus on data management systems for various elements of the national communication. The training should also include best practices and the evaluation (and costing) of adaptation options, strategies and measures.

The regional support component may include a clearinghouse mechanism for climate change and will be hosted at SPREP. The clearinghouse and technical support will include support for capacity building, education, training and public awareness, technology transfer, research and systematic observation (PI-GCOS). Additionally, a Regional Climate Centre to be hosted at SPREP with help from WMO RA V could be established to enhance capacity building in climate science and its related fields to support in-country activities/tasks on climate change.

UNDP, as the GEF Implementing Agency for the project, will be consulted on all aspects during the execution of the project. It will be fully informed of all activities and invited to actively participate in all technical and policy workshops related to the project, so that it can provide useful inputs and contributions to ensure the successful implementation of the project.

Technical assistance from other national, regional and international organizations, consultants and experts will be sought where and when necessary and appropriate.

5. INSTITUTIONAL FRAMEWORK FOR PROJECT IMPLEMENTATION

The National Climate Change Country Team (NCCCT), the National Climate Change Coordinator, Technical Adviser and the Thematic Working Groups will form the project management team for the preparation of second national communication. This project management arrangement worked well for the preparation of initial national communication. The Project Management Team will work and undertake its tasks under the auspices of the ED/OPM in consultation with other relevant government departments, the private sector, and non-government organizations.

The following thematic working groups will be formed to assist with the preparation of various components of the national communication; (i) National Greenhouse Inventory, (ii) Vulnerability and Adaptation; (iii) Mitigation (iv) Technology transfer, Research and systematic observation; (v) Education, training, public awareness and information and networking and Capacity-building; and (vi) Compilation of National Communication, National Circumstances, and Integration of Sustainable Development. Each thematic working group will comprise of a number of experts drawing both from public and private sectors, communities, and NGOs, as appropriate.

The NCCCT will provide technical and policy oversight to the project, facilitated by the National Climate Change Coordinator (NCCC) who will be assisted by a Climate Change Technical Adviser

(CCTA) with technical support. The NCCC will report to the Director of the ED/OPM and will be responsible for the operational programme of project implementation and will be located in the International Advisory Unit of the ED/OPM. The Project Management Team (Director of ED/OPM, NCCC, and CCTA) will have adequate and appropriate computer and telecommunications facility, including Internet, to enable them to efficiently and effectively undertake their activities.

Figure 1 shows the institutional framework and project management structure. As in the case of Initial National Communication, this project will be executed by the ED/OPM with the support of various government ministries and other non-government organizations.

Additional assistance will be provided to the project by regional and international organizations based in Tuvalu in relevant areas. The NCCCT will comprise of various ministries and relevant departments, as well as representatives from the private sector, local communities and NGOs. The NCCCT will ensure that the recommendations of the project are integrated into overall national development planning processes.

A National Coordinator will be appointed to coordinate the day-to-day execution of activities to be carried out by six thematic working groups, which will include experts both from public and private sectors, education institutions, local communities and NGOs. The National Coordinator will serve as secretary to the NCCCT.

The NCCCT will meet every two months to review project implementation and provide scientific, technical, policy and strategic guidance. The minutes of these meetings will be shared with all participating institutions.

6. ASSESSING THE SNC IMPACTS

UNDP guidelines and procedures on reporting, monitoring and evaluation will be followed throughout the project cycle. In addition, the National Coordinator will provide quarterly and yearly progress report to UNDP and copy to all members of NCCCT and the Environment Department who will be hosting and executing the project. If possible, these reports may be compiled into electronic newsletters that will be distributed to all participating institutions. These reports will enable the NCCCT and UNDP to evaluate the progress of the project on a regular basis and identify difficulties and shortcomings with a view to overcoming them during the period of project implementation. These reports will be reviewed by UNDP for their quality and standard, comprehensive Environment Department, and conformity to the proposed terms of reference and dates of completion. In addition, a mid-term review between UNDP and the Environment Department may be conducted. An independent evaluation by a qualified consultant will be conducted at the end of the project.

The GEF procedures require the combined Annual Project Report (APR)-Project Implementation Revision (PIR) to be carried out annually. The National Coordinator will prepare the preliminary project report for revision and, where necessary, specific recommendations will be made for any revisions that will be required during the course of the implementation of the project.

An independent financial audit will be conducted according to the UNDP rules and procedures. During the implementation of the project, regular financial statements will be prepared and provided to UNDP for accessing funds for project activities.

At the beginning of the project, a practical framework to assess capacity development and the potential impacts of the national communication process will be developed. The framework may

look into five strategic areas: 1) Capacity to conceptualize and formulate policies, legislation, strategies and programmes; 2) Capacity to implement policies, legislation, strategies and programmes; 3) Capacity to engage and build consensus among all stakeholders; 4) Capacity to mobilize information and knowledge; 5) Capacity to monitor, evaluate, report and learn will be included in the framework.

The framework will identify a few practical indicators to assess the impacts of the SNC in incorporation climate change concerns into development and sectoral planning, as appropriate. The National Communications Support Programme (NCSP) would provide guidance on developing an impact assessment framework, linked to the different components of the SNC, and the possible indicators that may used to assess impacts.

In developing this framework, capacity development impacts may be given special attention. In general, capacity development can be assessed at three levels:
a) At the individual level - the process of changing attitudes and behaviors, most frequently through imparting knowledge and developing skills through training, learning by doing, participation, ownership, and processes associated with increasing performance through changes in management, motivation, morale, and levels of accountability and responsibility.
b) Capacity development at the organizational level - overall performance and functioning capabilities, such as developing mandates, tools, guidelines and information management systems for the ability of the organization to adopt change.
c) At the systemic level - creation of enabling environments i.e. the overall policy, economic, regulatory and accountability frameworks within which institutions and individuals operate, relationships and processes between institutions.

It is important to note that the development and adoption of such a framework would be a country-driven exercise that seeks to bring the SNC process closer to development priorities in the context on national policy-making. Under the guidance of the NCSP, Tuvalu would design an impact assessment framework that meets the country's needs and priorities in terms of facilitating the linkage between the SNC and development issues. Thus the above framework only represents some initial thoughts on how the impacts of the SNC could be evaluated throughout its implementation. The final framework, including the appropriate indicators, would be identified and agreed by the national team, with the support of the NCSP

7. BUDGET

As the proposed activities are standard enabling activities required for the preparation of national communication, so the incremental cost for undertaking these activities are also full cost, and hence no incremental cost analysis is required.

Thus, the total requested funding of US$405,000 and reflects the current real needs and concerns of the country in order to cope with adverse effects of climate change. Although some capacity has already been built during the Initial National Communication and its Phase II top-up funding project, further capacity-building, including training, for the project team members, especially those new members, are still very much needed. A significant portion of the funding requested would be used for human and institutional capacity-building or strengthening, with a view to slowly building up a solid technical team that would be responsible for preparing future national communications in a sustainable manner.

As a country "with areas prone to natural disasters" (Article 4.8 (d), "with areas liable to drought…"

(Article 4.8 (e), "with areas with fragile ecosystems…" (Article 4.8 (g), "whose economies are highly dependent on … consumption of fossil fuels and associated energy products." (Article 4.8 h), and being a small island developing State, Tuvalu deserves special consideration including necessary actions related to funding, insurance and the transfer of technology, to meet its specific needs and concerns arising from the adverse effects of climate change.

The proposed budget for each proposed component of activity has been estimated and thoroughly reviewed by UNDP and the NCCCT before it is fully endorsed by the UNFCCC Focal Point and the national GEF Operational Focal Point.

8. DETAILED WORK PLAN

It is expected that the proposed three-year project will commence in August 2006 and end in August 2009. The detailed work plans for each component will be developed by the National Coordinator in full consultation with the NCCCT after the approval of the project, with the guidance and assistance of UNDP, which will be consulted throughout the project cycle.

Detailed Work plan

	Year 1				Year 2				Year 3			
	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q	1st Q	2nd Q	3rd Q	4th Q
1. National circumstances												
1.1 Analyses of development priorities, objectives and national circumstances to address climate change												
1.2 Examine possibilities for incorporation of climate change concerns into the national and/or regional development objectives, priorities, circumstances and programmes												
1.3 Update information on the features of national geography, climate, natural resources and socio-economic conditions												
1.4 Establishment of an institutional framework for the preparation of 2NC												
1.5 Compilation of information from existing sources on national circumstances												
2. Greenhouse gas inventory												
2.1. Formation of the thematic working group on GHG inventory												
2.2. Revise the input data, taken into consideration data gaps and areas needing improvement identified in the stocktaking exercise												
2.3 Conduct training workshop on the use of IPCC technical , GPG and GPG for LUCF												
2.4 Identify key-source categories of emissions												
1. 2.5 Gather available data from national sources to fill inventory data gaps and identify and develop methods for overcoming inventory data gaps if there is no available data												
2.4. Undertake national GHG inventories for the year 2000,												
2.5 Describe procedures and arrangements undertaken to collect and archive data for the preparation of national GHG inventories, and efforts to make this a continuous process, including information on the role of the institutions involved												
2.6 Organize workshop for presentation and discussion on the results obtained from the GHG inventory												
2.9. Prepare final GHG Inventory following the UNFCCC												
3. Programmes containing measures to facilitate adequate adaptation to climate change												
3.1. Formation of the thematic working group on vulnerability and adaptation assessment												

Organize a training workshop for the TWG on V&A on the use of available methods and tools for conducting V&A assessment												
3.2. Review the scenarios for climate change, applying the most recent updated version of MAGICC-SCENGEN and examine climatologies for Tuvalu												
3.3. Analyze the climate changes for the period 1961-2000 to identify trends for temperature, precipitation, wind, cloudiEnvironment and sunshine hours												
3.4. Analyze the time series data for ENSO events and climate extremes												
3.5. Analyze anecdotal evidence of impacts of climate change and sea-level rise in communities/villages building on CBDAMPIC process												
3.6. Undertake impact assessment in key vulnerable sectors												
3.6. Describe links between climate, and socio-economic baseline conditions of the country in the most vulnerable sectors												
Draft adaptation strategy												
3.7. Identify high priority adaptation strategies and measures												
3.8. Carry out cost-benefit analysis of proposed adaptation measures												
3.9. Synthesize information and prepare a national adaptation plan of action building												
3.9. Organize workshop to discuss the results from V&A												
3.10. Final Vulnerability assessment and national adaptation plan following the UNFCCC												
4. Programmes containing measures to mitigate climate change												
4.1. Formation of thematic working group on Mitigation												
4.2. Review previous work on mitigation and renewable energy development building on PIREP project results												
4.3. Conduct training workshop for the TWG on Mitigation on the use of methods and tools for mitigation analyses and assessment												
4.4. Based on the results from the GHG Inventory, develop a baseline scenario for mitigation												
4.5. Develop a series of mitigation scenarios to abate the increase of the GHG emissions in terms of sustainable development objectives												
4.6 Prepare a draft mitigation plan building on the outcomes of PIREP project												
5. Other information considered relevant to achievement of the objective of the Convention												
5.1. Formation of thematic working group on technology transfer and research and systematic observation												

5.2. Conduct training workshop for TWG on technology transfer and research and systematic observation on how to conduct TNA												
5.3. Assess the technology needs for adaptation and mitigation												
5.4. Prepare a synthesis report on the TNA												
5.5. Review needs and priorities for research and systematic observation (RSO), building on the outcomes of PI-GCOS.												
5.6. Prepare a report on RSO using the UNFCCC												
5.7. Compile and analyse information on activities relating to the implementation of Article 6 of the Convention and the New Delhi work programme												
5.8. Compile and analyse information on capacity-building activities in accordance with the UNFCCC's capacity-building framework.												
6. Constraints and gaps and related financial, technical and capacity needs												
6.1. Prepare an analysis of financial, technical and capacity needs while undertaking the activities, measures and programmes to implement the Convention and improve the national communication on the continuous basis												
6.2. Compile and analyse information on financial and technical resources or other in-kind contributions made available by Tuvalu for the preparation of 2NC												
6.3. Compile and analyse information on financial resources and technical support provided by GEF, Annex II Parties or bilateral and multilateral institutions, for activities related to climate change												
6.4. Prepare project proposals on adaptation and mitigation for funding												
6.5. Prepare proposals for pilot demonstration projects on adaptation focusing on barriers and ways to overcome these barriers												
6.6. Compile and assess information on technology and local know-how development needs												
7. Preparation and submission of the 2NC												
7.1. Compile a draft national communication and circulate it for comments												
7.2. Hold a national workshop to consider and endorse the draft 2NC												
7.3. Finalize and submit 2NC												

Appendix C: Terms of Reference

PROJECT MANAGEMENT

National Climate Change Coordinator (NCCC)

I. Project background information

Tuvalu completed its Initial national communication and submitted it to the secretariat of the UNFCCC during the fifth Conference of the Parties in October 1999. The preparation of Initial National Communication (INC) was supported through a Pacific Island Climate Change Assistance Programme (PICCAP). PICCAP was a GEF-funded enabling activity for the preparation of INCs of 10 Pacific Island countries.

Under PICCAP programme countries were required to establish appropriate institutional arrangements to implement the various activities/tasks in the preparation of the national communication. In the Tuvalu the role of national PICCAP project manager was assumed by the National Climate Change Coordinator who worked under the guidance/supervision of, and closely with, the International Environment Adviser within the National Environment Service. The NCCC also provided secretariat and administrative support to NCCCT to implement the project in collaboration with the regional PICCAP programme.

The project for preparation of the Second National Communication on climate change is a logical step towards further implementation of the UNFCCC at the national level. Its main objective is to prepare a comprehensive report on climate change related issues in the Tuvalu. The analysis conducted within the INC will be updated and upgraded/extended, which will result in preparation of a second national communication in accordance with the UNFCCC guidelines for preparation of national communications from Non-Annex I Parties, which were adopted at the Eighth Conference of the Parties. Furthermore, the preparation of the 2NC will ensure that climate change issues are not considered as separate to national and local environmental concerns by integrating objectives into national and local strategic planning processes.

Duration of the project is 36 months.

II. Scope of the assignment

The NCCC will manage the project on a day-to-day basis and is accountable to the executing agency (through the Director of the Environment Department) for the planning, management, quality control, timelines and effectiveness of the activities carried out, as well as for the use of funds. The NCCC will ensure the regular monitoring and feedback from activities already under implementation.

The NCCC will be the secretariat of the Project Management Team (PMT) located within the Environment Department. The NCCC will work closely with the UNFCCC focal point, UNDP Programme Officer for Environment, Climate Change Technical Adviser and the National Climate Change Country Team.

The NCCC will be responsible for all administrative (contractual, organizational and logistical) and all accounting (disbursements, record-keeping, cash management) matters under the Project.

III. Duties and Responsibilities

The National Climate Change Coordinator (NCCC) will have the following duties:

- Manage the day-to-day operations of the Project Management Team (PMT),
- Prepare a detailed work plan and budget, noting stock-take reports;
- Prepare and submit to UNDP, NCCCT and the Environment Department , regular progress and financial reports;
- Coordinate and oversee the preparation of the outputs of the 2NC;
- Ensure effective communication and adequate information flow with the relevant authorities, institutions and government departments in close collaboration with the NCCCT;
- Organize and coordinate information exchange between participating institutions in the region and internationally
- Maintain and establish additional links with other related national and international programmes and other Enabling Activities such as NAPA, NCSA, , PIREP and other national projects;
- Ensure appropriate stakeholder participation in the project implementation and coordinate the work of all stakeholders under the guidance of the Environment Department and NCCCT and in consultation with the UNDP Country Office;
- Ensure that information is available to the NCCCT about all government, private and public sector activities, which impact on capacity development;
- Prepare the Terms of Reference for consultants and experts and ensure their timely hiring;
- Coordinate with the CCTA guide the work of consultants and experts and oversee compliance with agreed work plan and timely completion of tasks;
- Organize and coordinate the procurement of services and goods under the project;
- Coordinate, manage and monitor the implementation of the Project activities/tasks undertaken by the various thematic working groups, local experts; consultants, sub-contractors and co-operating partners;
- Assume overall responsibility for the proper handling of logistics relating to all project workshops and events;
- Manage the Project finance, oversee overall resource allocation and where relevant submit proposals for budget revisions with the help of the UNDP officer;
- Maintain the project's files and supporting documentation including disbursement ledger and journal;
- Ensure that necessary financial, procurement, disbursement and personnel matters are effectively addressed on timely basis;
- Prepare internal and external correspondence for the PMT
- Assist in the preparation of documentation in advance of and following all meetings, edit reports and other documents for correctness of form and content;
- Organize meetings, training workshops, etc for the project personnel and the thematic working groups,
- Co-ordinate and assist in travel arrangements for project personnel or for representatives within the thematic working groups;
- Maintain and update information on the established national web site;
- Communicate with the general public, through the media and other methods of education and awareness raising about the project and its outputs
- Provide oral interpretation and written translation as required;
- Undertake any other administrative/financial duties and actions related to the Project as requested by the NCCC, Environment Department, NCCCT and UNDP.
- Serve as secretary to the NCCCT.

IV. Qualifications and Skills

- Minimum of 3 years of administration or project management work experience in relevant fields;
- Demonstrated ability in liaising and cooperating with all project stakeholders including government officials, scientific institutions, NGOs and private sector;
- Familiarity with international organizations operations and structure;
- Substantial experience in Government and in interdepartmental procedures
- Interest in and understanding of environmental issues, including climate change
- Familiarity with international negotiations and processes an advantage
- Strong communications and interpersonal skills
- Written and oral communication in Tuvaluan and English
- Excellent computer knowledge (MS Office, Internet)
- Tuvaluan citizenship

CLIMATE CHANGE TECHNICAL ADVISER (CCTA)

I. Project background information

The preparation of 2NC will involve a multitude of tasks/activities ranging from project management, financing and administration to the implementation of day-to-day activities or tasks that would be carried out by numerous individuals and organizations. In the light of the implementation of the project a Climate Change Technical Adviser (CCTA) will be required to work closely with and assist the NCCC in managing and supporting the implementation of the activities/tasks especially those requiring technical aspects relating to climate change and the preparation of 2NC. The CCTA will be a part of the PMT located in the ED/OPM who is responsible for the implementation of the UNFCCC.

Duration of the project is 36 months.

II. Scope of Work

The CCTA is responsible to and will assist the NCCC in the coordination of daily activities related to the technical component and will be responsible for the successful outcomes of the field and technical activities under the Project.

The CCTA is accountable to the executing agency (through the NCCC) for the planning, management, quality control, timeliness and effectiveness of the technical requirements of the project. The CCTA will ensure the regular monitoring and feedback from technical activities already under implementation.

III. Duties and Responsibilities

The CCTA will have the following duties:

- Provide assistance to the NCCC regarding the necessary financial, procurement, disbursement and personnel matters directly related to technical activities,
- Compile and/or prepare the technical documentation necessary required under the project;
- Maintain the project's technical component files and supporting documentation;
- Prepare internal and external correspondence related to technical activities for the PMT

- Maintain technical component files and assist in the preparation of documentation in advance of and following all technical meetings, edit technical reports and other documents for correctness of form and content;
- Organize technical activities meetings, training workshops, etc for the project personnel and the thematic working groups,
- Organize and coordinate technical information exchange through the NCCC between participating institutions in the region and internationally
- Maintain and update technical information for posting on the established national web site;
- Assist the NCCC in the preparation of documents relating to project activities and
- Assist the NCCC prepare the detailed work plan and budget;
- Assist the NCCC prepare and submit to UNDP and the ED/OPM , regular progress reports;
- Assist the NCCC coordinate and oversee the preparation of the outputs of the 2NC;
- Assist the NCCC to ensure effective communication and adequate information flow with the relevant authorities, institutions and government departments in close collaboration with the NCCCT;
- Assist the NCCC maintain and establish additional links with other related national and international programmes and other Enabling Activities such as NCSA, NBSAP, PIREP and other national projects;
- Assist the NCCC prepare the Terms of Reference for consultants and experts and ensure their timely hiring;
- Assist the NCCC guide the work of technical consultants and experts and oversee compliance with agreed work plan and timely completion of tasks;
- Assist the coordinator organize and coordinate the procurement of technical services and goods under the project;
- Assist the NCCC coordinate, manage and monitor the implementation of the Project technical activities/tasks undertaken by the various thematic working groups, local experts; consultants, sub-contractors and co-operating partners;
- Undertake any other actions related to the Project as requested by the Coordinator, ED/OPM and UNDP.
- Assist the NCCC serve as secretary to the NCCCT.

IV. Qualifications and Skills

- Advanced university degree in the fields related to climate change and environmental management
- Minimum of 5 years of working experience in the area relevant to the project;
- Substantial involvement in the preparation of the national GHG inventory, vulnerability and adaptation assessment and the preparation of Initial national communication
- Demonstrated ability in managing projects, and in liaising and cooperating with all project stakeholders including government officials, scientific institutions, NGOs and private sector;
- Familiarity with international organizations operations and structure;
- Substantial experience in Government and in interdepartmental procedures
- Familiarity with international negotiations and processes under the UNFCCC
- Strong time-management, organizational and inter-personal skills;
- Excellent computer knowledge (Internet, Word, Excel, Power Point, etc);
- Ability to work in both Tuvaluan and English
- Tuvaluan citizenship.

NATIONAL CLIMATE CHANGE COUNTRY TEAM (NCCCT)

The National Climate Change Committee (NCCCT) will be responsible for supervising project execution. This will include evaluating project outputs to ensure that project activities are being carried out in a timely manner and to acceptable levels of quality, and reviewing the status and needs of countries throughout project implementation. The NCCC will provide a policy and technical platform for the project and in that context it will have the following duties.

III. Duties and Responsibilities

The NCCCT responsibilities will include the following:

1 Ensuring that national climate change policies and programmes are consistent with national development priorities and objectives;
2 Ensuring that all relevant stakeholders in the country are kept informed and consulted on the development of climate change issues and policies;
3 Lay down policies defining the functions, responsibilities and delegation of powers for the local implementing agency and the Project Management Team within the ED/OPM ;
4 Overseeing national policies on climate change and of the implementation of the UNFCCC at a national level;
5 Coordinate and manage the overall project activities and the budget;
6 Facilitate coordination of project activities across institutions;
7 Review the project activities, and their adherence to the work plan set forth in the project document;
8 Review and comment on each year's proposed work plan and budget;
9 Take decisions on the issues brought to its notice by UNDP and other cooperating institutions, and provide advice regarding efficient and timely execution of the project;
10 Initiate remedial action to remove impediments in the progress of project activities that were not envisaged earlier;
11 Develop negotiating positions and strategies for the Government of Tuvalu for meetings of the COP of the UNFCCC;
12 Monitor and review the progress of the project against its stated outputs, including progress reports prepared by the NCCC;
13 Review and approve the project work plan;
14 Review and approve the monitoring and evaluation timetable;
15 Make modifications, as necessary, to the number and scope of workshops being organized under the project;
16 Provide strong political support and overall policy advice for the development and realization of the project and its outcomes;
17 Assist in mobilizing available data and expertise;
18 Endorse the detailed work plan, produced thematic reports, Final 2NC Report and Action Plans;
19 Propose to the Government to adopt the 2NC for submission to the COP through the UNFCCC Secretariat.

THEMATIC WORKING GROUPS

1. THEMATIC WORKING GROUP ON GHG INVENTORY

I. Scope of Work

The Thematic Working Group on National GHG Inventory will be formed to carry out the inventory of GHG emissions in Tuvalu. The group will consist of experts from relevant ministries, institutions and agencies of government and non-government organizations. The group will ensure that specific tasks relating to the national GHG inventory is carried out in a timely manner and will ensure efficient coordination of outputs of consultants and national institutions. The activities undertaken by the national institutions will contribute to the strengthening of institutional arrangements for compiling, archiving, updating and managing GHG inventories.

II. Duties and Responsibilities

Particular duties are as follows:

1 Undertake national GHG inventory for the year 2000, according to the for the preparation of National Communications (decision 17/CP.8)
2 Participate in the training workshop on the use of IPCC , and GPG including one for the LUCF;
3 Include information on the other non-direct GHGs such HFCs, PFCs and SF_6 as well as CO, NO_X, SO_X and NMVoCs, where available;
4 Revise the input data, taking into consideration data gaps and areas needing improvement identified in the stocktaking exercise
5 Collect/gather available activity data from national sources to fill inventory data gaps
6 Identify and develop methods for overcoming inventory data gaps if there is no available data
7 Identify barriers to obtaining existing data for key sources and propose solutions
8 Archive relevant data for the project duration
9 Calculate emissions for the year 2000 for all sectors
10 Describe procedures and arrangements undertaken to collect and archive data for the preparation of national GHG inventories, as well as efforts to make this a continuous process, including information on the role of the institutions involved;
11 Utilize the deliverables under the regional project,
12 Organize (in cooperation with the NCCC) workshop for presentation and discussion on the results obtained from the GHG Inventory and
13 Prepare a draft National GHG Inventory Report for inclusion in the second national communication.

III. Qualifications and Skills

The institutions and/ or expert individuals contracted for undertaking project activities should meet the following minimum criteria:

1 Sound and broadly-recognized scientific expertise on climate research in the Tuvalu
2 Prior experience in inventory preparation, through involvement in the Initial national communication (preferable);

3 Highly qualified scientists working in the fields of emission factor development or data collection methods
4 Familiarity with the UNFCCC and IPCC Technical Guidance on National GHG Inventories.

VI. Expected output:

A National GHG Inventory Report in accordance with the UNFCCC . The report should include information on other non- direct GHGs: HFCs, PFCs and SF_6 as well as CO, NO_X, SO_X, where available.

2. THEMATIC WORKING GROUP ON VULNERABILITY ASSESSMENT AND ADAPTATION

I. Scope of Work

The TWG on V&A will consist of teams that have been established for NAPA. The group will ensure implementation of specific activities outlined below, as well as coordination of the outputs of other consultants engaged outside the institution. The activities undertaken by the national institutions will also strengthen institutional arrangements for systematic climate observation, data management and control, processing and updating of meteorological and hydrological services data.

II. Duties and Responsibilities

Particular duties are as follows:

1 Participate in the training workshop on V&A methods and tools available for V&A assessment work;
2 Revise the scenarios for climate change, applying the most recent version of MAGICC-SCENGEN;
3 Analyze the climate changes for the period 1961-2000 for existing stations of the following parameters: temperature, precipitation, wind, cloudiness and sunshine hours,
4 Identify the data needs, availability and suitability, and establish datasets and baselines for the assessment work;
5 Analyze the existing climate data and parameters, by months and years
6 Prepare climate maps using GIS technology;
7 Review the vulnerability assessments of the following sectors: agriculture, water resources, natural ecosystems, forestry, and human health, including identification of vulnerable areas that are most critical;
7 Describe links between climate, and socio-economic baseline conditions of the country in the most vulnerable sectors;
8 Based on the output of the vulnerability assessment, evaluate the feasibility of available adaptation measures to meet their specific needs and concerns arising from the adverse effects from the climate change;
9 Prepare a national adaptation action plan to implement those measures being of highest priority including clear distinction of responsibilities among the relevant stakeholders, timeframe for fulfillment/implementation of the recommended measures, financial means for implementation of the measures, and identification of possible barriers and risks;
10 Liaise and consult with the TWG on Technology Transfer and Research and

Systematic Observation on issues relating to technology needs assessment and climatologies of Tuvalu;

11 Organize (in cooperation with the NCCC and CCTA) a workshop to present the results of the V&A assessment;
12 Prepare comprehensive report on Vulnerability assessment and national adaptation Action plan and
13 Prepare a chapter on "Programmes containing measures to facilitate adequate adaptation to climate change," in accordance with the UNFCCC .

III. Qualifications and Skills

The institutions and experts contracted for undertaking project activities should meet the following minimum criteria:

4 Sound and broadly-recognized scientific expertise on climate research in Tuvalu;
5 Prior experience in vulnerability assessment and adaptation process, through involvement in the Initial national communication (preferable);
6 Highly qualified scientists working in the fields of climate observation and vulnerability analysis in the specific sectors and
7 Familiarity with the UNFCCC, IPCC methodology, MAGICC/SCENGEN and other available methods and tools.

vI. Expected output:

A Report on vulnerability assessment and adaptation strategy including Action Plans for the Tuvalu.

3. THEMATIC WORKING GROUP ON MITIGATION

I. Scope of Work

The thematic Working Group on Mitigation will be responsible for carrying out GHG mitigation analyses and identifying mitigation options for Tuvalu. It will ensure timely and effective implementation of specific activities outlined below, as well as coordination with the outputs of other consultants engaged outside the institution.

II. Duties and Responsibilities

1 Based on the results from the GHG Inventory and future development plans, particularly in the energy and land use change and forestry sectors, develop a baseline and mitigation scenarios to abate the increase of GHG emissions;
2 Consider the main national economic and social development trends in the analysis, including expected GHG emissions in energy, agriculture, land-use change and forestry and waste management;
3 Extend the analysis on the side of energy consumption, including energy consumption in the industry (for heating, for technological processes), in the public sector and in the residential sector;
4 Revise the measures contained in the INC according to the latest economic development, including quantitative measures in all sectors;
5 Identify, formulate and prioritize programmes containing measures to mitigate climate change within the framework of sustainable development

6 Finalize the GHG mitigation analysis using the selected tools and additional background information in order to finalize the cost-benefit analysis of the different measures, develop a series of mitigation scenarios to abate the increase of the GHG emissions;
7 Liaise and consult with the TWG on GHG Inventory and the TWG on Technology Transfer and Research and Systematic Observation on matters relating to GHG inventories and on technology needs for mitigation;
8 Formulate a draft national action plan to abate the GHG Emissions including information on cost analysis, assessment of technology options for the different mitigation options in various sectors, institutional capacity-building needs to sustain mitigation work, and the related legal and institutional frameworks;
8 Organize (in cooperation with the NCCC) a workshop to present the results of the GHG Mitigation and draft national action plan and
9 Prepare final report on GHG mitigation and national action plan, including comments from the stakeholders

III. Qualifications and Skills

The institutions and/or individuals contracted for undertaking project activities should meet the following minimum criteria:

8 Sound and broadly-recognized scientific expertise on climate research, energy use and technology in Tuvalu;
9 Experience in preparing scenarios for GHG mitigation;
10 Qualified scientists working in the related areas: Energy, Agriculture, Land Use Change and Forestry, and Waste
11 Familiarity with the UNFCCC, software modeling tools such as LEAP, ENPEP, WASP, GACMO, etc.

vI. Expected output:

Report on GHG Mitigation and National Action Plan for the abatement of the GHG emissions.

The proposed activities will be undertaken in appropriate sequence so as to maximize the synergies between each component of the proposed activities, as well as the efficiency and cost-effectiveness for the implementation throughout the project cycle. Some proposed activities that are not related to each other, such as GHG inventory and vulnerability assessment, will be undertaken in parallel, as indicated in Table 5.

Good practices in project implementation, such as the efficient use of financial and human resources, the engagement of qualified local and regional consultants, public participation throughout the project cycle, will be adopted where appropriate. Established will be followed, while established tools and methodologies will be used.

4. THEMATIC WORKING GROUP ON TECHNOLGY TRANSFER AND RESEARCH AND SYSTEMATIC OBSERVATION

I. Scope of Work

The thematic Working Group on Technology Transfer and Research and Systematic Observation will be responsible for carrying out technology needs assessment for mitigation and adaptation; and for assessing the needs and priorities for research and systematic observation in the Tuvalu. The

group will ensure timely and effective implementation of specific activities outlined below, as well as coordination with the outputs of other consultants engaged outside the institution.

II. Duties and Responsibilities

10 Participate in a training workshop on the technology needs assessment and the use of the UNFCCC on research and systematic observation;
11 Carry out technology needs assessment for Tuvalu
12 Undertake an assessment of the needs and priorities for research and systematic observation in close collaboration with Pacific Islands – Global Climate Observing System initiatives;
13 Prepare an analysis of the climatologies of various stations in Tuvalu;
14 Liaise closely and consult with the TWGs on GHG inventory, Vulnerability and Adaptation, and Mitigation on issues of relevance, especially on climate data, technologies and capacity building.
15 Provide substantive input to the work of TWGs on Vulnerability and Adaptation and Mitigation
16 Formulate an action plan for technology needs for mitigation and adaptation including assessment of technology options in various sectors , institutional capacity-building needs, related legal and institutional frameworks;
17 Organize (in cooperation with the NCCC) a workshop to present the results of the technology needs assessment and research and systematic observation and
18 Prepare final report on technology transfer issues and research and systematic observation, including comments from the stakeholders

III. Qualifications and Skills

The institutions and or expert individuals contracted for undertaking project activities should meet the following minimum criteria:

12 Sound and broadly-recognized scientific expertise on various technologies and climate research in Tuvalu;
13 Experience in preparing a report on technology, research and systematic observation through involvement in the Initial national communication
14 Qualified scientists working on issues relating to climate, weather, meteorology and hydrological services;
15 Familiarity with the methodologies for technology needs assessment and the UNFCCC .

IV. Expected output:

A completed technology needs assessment for Tuvalu and a final report on Research and systematic observation including emerging needs and priorities.

5. THEMATIC WORKING GROUP ON EDUCATION, TRAINING AND PUBLIC AWARENESS (ETPA), INFORMATION AND NETWORKING (INFNET) AND CAPACITY-BUILDING (CB)

I. Scope of work

The TWG on ETPA, INFNET and CB will be responsible for compiling information on the needs

and priorities for ETPA, INFNET and CB. The group will examine ways to promote climate change education, training and public awareness building on the work already done on this issue during PICCAP Phase II (Top-UP) activities. The group will ensure timely and effective implementation of specific activities outlined below, as well as coordination with the outputs of other consultants engaged outside the institution.

II. Duties and responsibilities

16 compile and analyse information on activities/tasks relating to the implementation of the New Delhi work programme on Article 6 of the Convention;
17 Compile and analyse information on activities/tasks relating to the implementation of the Capacity-building framework of the UNFCCC (decision 2/CP.7);
18 Identify the needs and priorities for climate change education, training and public awareness and capacity-building as they relate to GHG inventory, vulnerability and adaptation assessment, mitigation, technology transfer, research and systematic observation and other emerging priorities;
19 Liaise and consult with the various TWG under 2NC project and the task team on National Capacity Self Assessment;
20 Prepare a draft National plan for implementation of Article 6 of the Convention and the UNFCCC capacity building framework;
21 Identify technology needs for information and networking;
22 Conduct a workshop (in collaboration with NCCC) on ways to promote climate change education, training and public awareness ;
23 Prepare a chapter on: (i) Education, Training and Public Awareness, (ii) Information and Networking, (iii) capacity-building for inclusion in the compilation of the 2NC.

6. THEMATIC WORKING ON NATIONAL COMMUNICATION AND INTEGRATION OF SUSTAINABLE DEVELOPMENT

I. Scope of work

The TWG on National Communication will be responsible for drafting of the Second National Communication with input from the various thematic working groups. The group will ensure that all information pertaining to the 2NC is compiled and disseminated for review and comment in a timely manner.

II. Duties and Responsibilities

24 Compile the 2NC in accordance with the UNFCCC based on information and or reports provided by the various TWGs;
25 Liaise and consult with the various TWGs on issues relating to their respective competencies;
26 Promote the integration of climate change concerns and issues into various TWG reports;
27 Identify and highlight evolving needs and priorities relating to the preparation of second national communication and the implementation of the Convention;
28 Prepare a final draft of the 2NC including a 10-page executive summary and technical annexes (if any);
29 Conduct a national workshop in collaboration with NCCT and the TWGs on the 2NC
30 Prepare final draft of 2NC, print and submit to the UNFCCC secretariat and disseminate through CD-Roms and a dedicated site on the ED/OPM website.

SCOPE OF AUDIT

1. Scope of Work

The scope of the audit should be sufficiently clear to properly define what is expected of the auditor but not in any way restrict the audit procedures or techniques the auditor may wish to use to form an opinion. It should specify at least the following:

- A definition of the entity or the portion of an entity that is subject to audit. (This will normally be the project office whether located within a government department or in a separate location.)
- That the audit will be carried out in accordance with either ISA or INTOSAI auditing standards.
- That the audit period is 1 January to 31 December of the year 20XX.
- That the scope of the audit is limited to the executing agency expenditures, which are defined as including (1) all disbursements listed in the quarterly financial reports submitted by the executing agency and (2) the direct payments processed by UNDP at the request of the executing agency.
- That the auditor will verify the mathematical accuracy of the CDR by ensuring that the expenditures described in the supporting documentation (the quarterly financial reports, the list of direct payments processed by UNDP at the request of the government, the list of disbursements made by UNDP as part of support services, and the UN agency expenditure statement) are reconciled to the expenditures, by disbursing source, in the CDR.
- That the auditor will state in the audit report the CDR expenditures excluded from the scope of the audit because they were made by UNDP as part of support services and the total expenditures excluded because they were made by a UN agency.
- That the auditor will state in the audit report if the audit was not in conformity with any of the above and indicate the alternative standards or procedures followed.

2. The Audit Report

The TOR should clearly indicate the expected content of the auditor's opinion. (Refer to Annex 2 for a sample Audit Report.) This would include at least the following:

- That it is a special purpose report and its intended use.
- The audit standards that were applied (INTOSAI standards, ISAs, or national standards that comply with one of these in all material respects).
- The period covered by the opinion.
- The scope restriction for those expenditures that are the responsibility of UNDP (as part of support services) or a UN agency.
- Whether the CDR presents fairly the expenditures for the project and that the funds were utilized for the purposes described in the project document and work plans.

This section should also indicate the due date for submission of a draft audit report and the signed audit report to the executing agency, as well as the due date for the submission of the signed audit report to UNDP.

3. Management Letter

The TOR should specify that the auditor would submit a management letter at the completion of the audit. Guidance should be provided regarding the topics/issues to be covered in the management

letter. At a minimum, the following topics/issues should be included:

- A general review of project progress and timeliness in relation to progress milestones and the planned completion date, both of which should be stated in the project document. This is not intended to address whether there has been compliance with specific covenants relating to specific performance criteria or outputs. However general compliance with broad covenants such as implementing the project with economy and efficiency might be commented upon but not with the legal force of an audit opinion.
- An assessment of the project's internal control system with equal emphasis on (i) the effectiveness of the system in providing the project management with useful and timely information for the proper management of the project and (ii) the general effectiveness of the internal control system in protecting the assets and resources of the project.
- A description of any specific internal control noted in the financial management of the project and the audit procedures followed to address or compensate for the weakness. Recommendations to resolve/eliminate the internal control noted should be included.
- Comments as to whether recommendations made in the management letter for the previous audit were implemented or, if not, the implementation status.

More detailed guidance for each of the above general categories is provided below.

Review of project progress

As part of the general review of project progress, specific steps could include the following:

- Review annual and quarterly work plans, quarterly financial reports, and requests for direct payments and assess in terms of their timeliness and their compliance with the project document and the UNDP Programming Manual (6.5.3 and 6.5.4).
- Review the Annual Project Reports prepared by the executing agency and assess in terms of compliance with UNDP and whether the executing agency met its responsibilities for monitoring described in the project document and work plans.
- Review whether the decisions and/or recommendations of the above activities have been followed through by the executing agency.
- Review the pace of project progress and comment on the causes for delays.
- Comment on whether implementation services of the UN Agency(s) were provided in line with project document and the work plan.

Assessment of internal control

The auditor is expected to conduct a general assessment of internal controls according to established internal control standards. An example of established internal control standards is available from the Organization of Supreme Audit Institutions (INTOSAI). The INTOSAI standards are intended for use by government managers to use as a framework to establish effective internal control structures. For further information, the INTOSAI for Internal Control Standards can be found on the INTOSAI Web site www.intosai.org. An overview of the standards can be found in the UNDP Contact tool (Chapter 6).

In addition to the above general assessment, additional specific steps could include the following:

- Review expenditures made by the executing agency and assess whether they are in accordance with project document, work plans and budgets; and are in compliance with the UNDP Programming Manual (6.4).
- Review the process for procurement/contracting activities and assess whether it was

transparent and competitive.

- Review the use, control and disposal of non-expendable equipment and assess whether it is in compliance with the UNDP Programming Manual (6.4.5); and also whether the equipment procured met the identified needs and whether its use was in line with intended purposes.
- Review the process for recruiting project personnel and consultants and assess whether it was transparent and competitive.
- Review the executing agency accounting records and assess their adequacy for maintaining accurate and complete records of receipts and disbursements of cash; and for supporting the preparation of the quarterly financial report.
- Review the records of requests for direct payments and ensure that they were signed by authorised government officials.

Recommendations for improvement

Recommendations should be directed to a specific entity so there is no confusion regarding who is responsible for implementation. The response of the entity should be included in the management letter, immediately following the recommendation.
Also, the auditor may wish to comment on "good practices" (if any) that were developed by the executing agency that should be shared with other project personnel.

Available Facilities and Right of Access
There should be a description of the nature and the location of all records belonging to the project. This list should specify those records kept at the executing agency's headquarters and those that are located at other offices.

The TOR should state that the auditor would have full and complete access at any time to all records and documents (including books of account, legal agreements, minutes of committee meetings, bank records, invoices and contracts etc.) and all employees of the entity. The auditor should be advised that he/she has a right of access to banks, consultants, contractors and other persons or firms engaged by the project management. If an auditor may not have unrestricted access to any records, person or location during the course of the audit, this restriction should be clearly defined, with reasons, in the TOR.

National Blueprint to Address Climate Change:
Government of Tuvalu

Introduction:
Tuvalu recognizes that climate change is a serious concern for Tuvalu. This is an international issue that needs international support and collaboration across all sectors of Tuvaluan society. We know that the climate change is reversible and we will strive to use all our efforts to address this problem as a matter of urgency.

This National Blueprint was developed from a National Climate Change Workshop and is seen as a follow up process to the development of Te Kakeega II and as such is part of Tuvalu's overall development strategy. The Blueprint appears as a set of recommendations that came from the National Climate Change Workshop

Review:
The Blueprint will be reviewed in 2008 to assess how many of the recommendations have been implemented. For those that have not been implemented an assessment will be made to find out the reasons why they have not been carried out and what actions are needed to ensure that they are carried out.

RECOMMENDATIONS:

1. Water Security

1 Need for policies/legislations and enforcements– water storage (e.g. ensure individual underground storage), usage and conservation, protection of groundwater
2 Identification of freshwater pools underground
3 Substantially increase water catchments and storage e.g. big water catchments like in Fiji
4 Drought response strategy in all islands. Currently only in Funafuti.
5 Community strategies- monitor their own underground water, ration water. Need to ensure quality control. Community awareness.
6 Desalination
7 Need low interest on loans for water infrastructure

2. Education and Capacity Building

1 Formal education- Quality education, esp. by improving the science curriculum to identify better adaptation options.
2 Need for more tertiary level scholarships, with a focus on climate science, explore UN sponsorship options. The international waters project has a component for scholarships so this should be utilized to build capacity for project writing
3 Culture and religion- need to be maintained, esp in area of medicines, and cultivation (for food security), and caring and sharing as a community adaptation method.
4 Project proposal write up, workshop and trainings. Other projects encouraged to allocate funding for scholarships for project proposal writing. e.g. IWP project. Proposal templates are available at the TANGO office. Learn about donor's requirements- e.g. write proposals in donors' languages.
5 Build capacity on data collection, publish data in recognized international journals- more credibility.
6 Also important to develop our own science capacity to prove the skeptics wrong. Need for research to show no positive impacts of climate change. Important to show this, especially to climate skeptics

7 Locate a UN presence in Tuvalu – this will help us to show them the impacts of climate change that we are experiencing to clarify our arguments regarding scientific data
8 Short term training (train the trainers).
9 Capacity building to be sustainable. The problem is that once we trained someone and the next year the person will work somewhere else.
10 Networking with regional organisations eg USP is required.
11 Allocate more money to TNCW so that they continue capacity building with women- outer islands.
12 Need to look at the impacts of climate change on the economy – eg impacts on fisheries
13 Need an awareness raising workshop for Tuvalu national Sea men – they travel around the world and it is important that they are aware of climate change, and its impacts on Tuvalu. They can then tell people in the world the problem we are experiencing during their travels

Adaptation needs- all require urgent implementation

1. Conservation

1 Biodiversity (plant and animal genetic resources)
2 Marine protected areas – Economic Exclusive Zones, sea mounts. Expand these to outer islands.
3 Adequate legislation and enforcements
4 Restoration methods – Coral cultivations, increase planting of mangroves (planting and replanting). Need for more money to spread mangrove replanting project beyond the current 3 islands. Department of Agriculture to play a stronger role.
5 Continue Awareness programs

2. Land Security

1 Sea walls- better designs, wave breakers as alternatives to sea walls, - good engineers
2 Legislation (e.g. building codes) and enforcements
3 Restoration activities
4 Awareness programs
5 Minimise erosion, restore and rehabilitate inland erosion sites
6 Import sand to raise elevation of islands. If we import sand (eg from Fiji) we need to screen this, look at all the costs and benefits of these options.
7 Find a method of resolving land disputes due to shifting lands from climate change
8 Conserve sand producing fish species e.g. parrot fish

3. Food security/ traditional foods

1 Promote cultivation of local food crops and livestock farming
2 Share salt tolerant or important varieties between islands/countries. Possibility of salt tolerant varieties of Pulaka from Ponphei (FSM) – SPC are now looking into the storing of genetic tissue of this salt tolerant variety, and at this stage, the extent to which it is tolerant to salt is unknown
3 Policy and enforcement of legislations to control trans-boundary movements of pests and diseases
4 Documentation and sharing of traditional knowledge of cultivation/farming
5 There is a need for more research, to determine the water salinity levels, and look at how this impacts upon the Pulaka and other traditional food crops of Tuvalu

Participation at International Meetings

1 Ensure the consistency of delegation to regional and international meetings of climate change and to report on these meetings, take actions on the recommendations from these

meetings and to make the reports available to all levels of society

2 Encourage the region to hold pre-COP meetings to ensure full participation and coverage of the agenda by PICs.
3 We need to build our core team of negotiators, with representatives from different departments. Enhance negotiation skills of PICs delegation (from a wide range of stakeholders)- not one year, but over 3-5 years. Need to distribute the negotiations training manual (PINMAN).
4 Nomination letters to be sent in advance to the UNFCCC Secretariat to ensure funding is secure for Tuvalu's participant (s). This will also avoid rushing at the last minute.
5 Send as much people as we can (with funding assistance from the Secretariat and other sources) to international climate change meeting (to follow other agenda items)
6 Voice must be heard at bilateral, regional and international levels
7 Better coordination at the national level (to ensure full consultation of with stakeholders to prepare positions before leaving for COPs), and so that delegates to the meeting are well organize before leaving to meetings, to ensure a stronger mandate.
8 Participation at the national level, all stakeholders should participate in preparing national positions, before the delegation leaves.
9 Communication & Reporting back before and after meetings is necessary e.g. through radio programmes.
10 Display national exhibition of Tuvalu at COP events – so that people better understand how climate change is impacting Tuvalu

Technology

1 There is now funding available under both the UNFCCC and the Kyoto Protocol for technology transfer for adaptation and energy needs; we need to prepare projects proposals to access these funds (e.g. Kyoto Protocol Adaptation Funds, UNFCCC Special Climate Change Funds, LDC (Least Developed Countries) fund.
2 Need monitoring equipment for meteorology activities and communication, not only for Funafuti but the whole country.
3 Use the NAPA to identify best technologies for Tuvalu.
4 Tuvalu should adopt appropriate technology, learn from lessons from other countries.
5 Need to merge traditional environmental practices with modern ones coming from the developed world
6 Encourage NGO and international organization support for the transfer of technology

Energy

- Urgent need for mitigation of greenhouse gas emissions and the use of renewable energy
- We need to look at the economic costs and benefits of renewable energy, we need to do a full cost analysis (also taking into account the social and environmental costs and benefits)
- Need to engage the private sector
- Tuvalu should look at taking on set targets to increase renewable energy by a set amount in a set time period, to highlight Tuvalu as a role model to the world
- Solar lights for all islands of Tuvalu

Disaster Management

1 Disaster management – need GIS mapping (SOPAC) – identify the most vulnerable areas – relocate. Hazard maps and Quickbird satellite images can be used to identify very vulnerable people and areas on each island.
2 Coordinate actions of government, NGOs and international organizations (Red Cross) in disaster management
3 We may need to review the national disaster plan, to measure its effectiveness – eg water

security

4 Immediate response measures are needed – need to construct strong shelters for refuge, with food and water
5 Establish an emergency fund to support disaster relief operations
6 Maintain and strengthen volunteer response strategy teams
7 Need boats for evacuation
8 Education and awareness on National Disaster Plan.

Development Planning and Financing

- Climate change must be recognized as a sustainable development issue, not just an environmental one, as it impacts all aspects of development – economic, social, security, and environmental.
- Recognise that climate change is a human right issue and that the right to live is a fundamental need
- There is an urgent need to address some issues now – we need to address the urgent priority issues immediately (implementation of urgent projects).

1 Need to start to integrate the NAPA and other adaptation findings into national development strategies – to start developing national proposals to access new international adaptation funding (must be integrated into existing and future national development strategies). E.g. Need to elaborate the Te Kakenga II – and include the outcomes of this workshop to this document
2 Must ensure that future reports (eg Nat Com) are representative of the nation, and have input from all sectors of society, including communities and outer islands
3 Seek new and additional funding opportunities from industrialized countries/UN, regional institutions, bilateral donors. E.g. EU (SOPAC Governance and Water Conservation project- Second calling for proposal in March.)
4 Role of national and NGOs – Small initiated Projects, e.g. Red Cross pilot project for community adaptation
5 Need for Global Environment Facility (GEF) funding guidelines to change to more accessible
6 Use local resources (from national budgets) for co-financing in order to access funds. This will show Tuvalu's commitment, and donors will be more willing to co-finance projects
7 Improve coordination of projects between government, NGOs and international organizations.
8 Formulate a big project that includes all islands of Tuvalu. It is more viable to formulate major projects to combat coastal erosion in a bigger scale and negotiate with donors to fund this project.
9 At international level, need to push to ensure that we can get funding for real projects, not more assessments/reports
10 CSD meeting in May – energy, CC – need to formulate concrete proposals in advance for this workshop. We need to take advantage of these opportunities. CSD 14 – 1` day dedicated to review of the action plan for SIDS – need some concrete proposals, to target to donors
11 Build a trust fund (along the lines of the Tuvalu trust fund concept) to finance infrastructure needs from interest draw downs. Traditional donors and multilateral donors should be approached to finance the fund.
12 Need for national driven strategies, not IGO driven.

Community participation/awareness:

1 Need to ensure stronger community ownership – to ensure the sustainability of any adaptation projects

2 National assessments and other documents on climate change should be made more accessible to the public (eg national strategies)
3 Need to ensure that when projects are being formulated, that stakeholders across all levels are consulted
4 Need for on-going awareness programmes, especially at the community level – to ensure public access to information, and helps ensure strategies are implemented
5 Must consider the special needs of women and children, as more vulnerable groups
6 Develop awareness tools for the community using projects as examples of positive action to address climate change
7 Information and communications are important – role of TANGO, NGO's, and volunteer organisations needs to be recognized

Other

1 Be wary of side line initiatives – nuclear, Asia Pacific Initiative on Climate and Sustainable Development,

SIGNATURE PAGE

Country: Tuvalu

UNDAF Outcome(s)/Indicator(s):	Strengthen human development to link climate change with achievement of MDGs

(Link to UNDAF outcome. If no UNDAF, leave blank)

Expected Outcome(s)/Indicator (s):	Enhanced Government capacity and commitment to meet its obligation under the UNFCCC

(CP outcomes linked t the SRF/MYFF goal and service line)

Expected Output(s)/Indicator(s):	Environmental considerations integrated into national development policies, strategies, programmes, and projects

(CP outcomes linked t the SRF/MYFF goal and service line)

Implementing partner: *(designated institution/Executing agency)*	Tuvalu Department of Environment
Other Partners: *(formerly implementing agencies)*	UNDP

Programme Period: 2007 - 2009
Programme Component: Energy and environment for sustainable development
Project Title: PIMS 2956 Enabling Activity for the Preparation of Tuvalu' Second National Communication to the UNFCCC
Project ID: 00044752
Project Duration: 3 years
Management Arrangement: NEX

Total budget (Part I): USD 405,000

- GEF US$ 405,000

Allocated resources:

- Government

Other (self Assessment): US $ 15,000

Agreed by (Government): _____

Agreed by (Implementing partner/Executing agency): Ministry of Environment

Agreed by (UNDP):_____

SIGNATURE PAGE

Country: _____TUVALU_____

UNDAF Outcome(s)/Indicator(s):
(Link to UNDAF outcome., If no UNDAF, leave blank)

Expected Outcome(s)/Indicator (s): Enhanced Government capacity and commitment to meet its obligations under global conventions

(CP outcomes linked t the SRF/MYFF goal and service line)

Expected Output(s)/Indicator(s): Environmental considerations integrated into national development policies, strategies, programmes and projects

(CP outcomes linked t the SRF/MYFF goal and service line)

Implementing partner: Tuvalu Department of Environment
(designated institution/Executing agency)

Other Partners: UNDP
(formerly implementing agencies)

Agreed by (Government):

Agreed by (Executing Agency):

Agreed by (UNDP):

78