KIRIBATI ADAPTATION PROJECT IMPLEMENTATION PHASE (KAP II)

Mainstreaming of an Integrated Climate Change Adaptation Based Risk Diagnosis and Response Process into Government of Kiribati

KAP II Component 1.3.2

Final Report

Kiribati Adaptation Project

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Acronyms

AUSAID	Australian Government Overseas Aid Program
CCA	Climate Change Adaptation
CHRDP	Coastal Hazard Risk Diagnosis and Planning
COP	Conference of Parties
CZM	Coastal Zone Management
GHG	Greenhouse Gas
GIS	Geographic Information Systems
GoK	Government of Kiribati
IPCC	Intergovernmental Panel on Climate Change
KAP II	Kiribati Adaptation Program Phase II
MELAD	Ministry of Environment, Lands and Agricultural Development
MFMRD	Ministry of Fisheries and Marine Resources Development
MHWS	Mean High Water Springs
MPWU	Ministry of Public Works Unit
NASC	National Adaptation Steering Committee
NIWA	New Zealand Institute of Water and Atmospheric Research
NZAID	New Zealand International Aid and Development Agency
PMU	Project Management Unit
TA	Technical Assistance
ToR	Terms of Reference
UKCIP	United Kingdom Climate Impacts Program
UNFCCC	United Nations Framework Convention on Climate Change
V&A	Vulnerability and Adaptation (to climate change)

EXECUTIVE SUMMARY

This Final Report for the Kiribati Adaptation Project (KAP II) Component 1.3.2, entitled *Mainstreaming of an Integrated Climate Change Adaptation Based Risk Diagnosis and Response Process into Government of Kiribati*, summarises key outcomes achieved in fulfilling the project Terms of Reference (ToR). Focused specifically on capacity building for climate change risk assessment, the project had two primary objectives:

1. Build capacity and capabilities within the Government of Kiribati (GoK) ministries (MELAD, MFMRD, Public Works) for climate change risk assessment and adaptation planning through a hands-on approach.
2. Secure approval for a side event at the 2009 Conference of Parties 15 (COP 15) in Copenhagen.

Working to fulfil the first objective, activities undertaken aimed to provide participants with the skills to undertake risk assessment at two scales: island and village level. The overarching objective was to up-skill government staff across Government agencies to ensure sustainable provision of training in the long term. Capacity building activities were focused on a Working Group comprised of officials from various Government agencies.

The risk assessment focused on potential risk from a rise in mean sea-level, storm-surges and the potential resultant permanent and transitory inundation of low-lying areas. A number of steps were taken to complete the risk assessment and build capacity. The steps ranged from gathering data to complete the assessment to developing tools to support capacity building. An extensive suite of tools were also developed to support the analysis and build capacity, including risk assessment and adaptation planning handbooks, training workshop, field visits, and external mentoring support. These tools were supported by land height data processed through the project to 10 cm height intervals (+/- 0.5 metres) and GoK infrastructure location information processed as Google Earth files to allow sharing with the Working Group.

The risk assessment was conducted at two scales: whole of South Tarawa and village level. The South Tarawa risk assessment considered the potential impacts of sea-level rise throughout on all of South Tarawa. A number of risks associated with inundation due to sea level rise were identified in South Tarawa. The likelihood and consequence of each risk occurring was analysed based on consideration of the level of impact, historic occurrence or past experience, and the effectiveness of the controls in place.

Working to fulfil the second objective, the Consultants regularly engaged with and consulted key GoK officials, funding partners and key event stakeholders. Briefings were produced for Ministers and stakeholders, outlining the aims and benefits of such an event. A submission was drafting, including a draft agenda, and submitted to the United National Framework Convention on Climate Change (UNFCCC), following official GoK approval.

When close to completion, structured reflections by the Consultants, discussions with the PMU and a dedicated Lessons Learned session with the Working Group (held during the Adaptation Workshop), allowed a series of project lessons learned to be deduced. In summary, the key lessons learned from the project were:

- Using a capacity building approach was vital in improving local autonomy, confidence and knowledge in conducting climate change risk assessment and adaptation

planning, and allowed the group to take greater ownership of the assessment outcomes.

- Running a number of capacity building activities that were both complementary and reinforcing, provided participants with a range of skills across different aspects of climate change risk assessment, allowing participants to gain confidence through repetition.
- Enhanced contour information (10 cm vertical resolution) was deemed useful when applied in the risk assessment process by the Working Group, despite its limitations of +/- 0.5m vertical accuracy.
- Dissemination of mapping information through the production of Google Earth mapping files, significantly improved access to required information. The Working Group was able to use the Google Earth files without being reliant on specialist mapping software.
- Need to maintain GoK mapping data was underlined through the process. This would allow all risks to be accurately accounted for in the risk assessment.
- The successful application for a Kiribati side event in Copenhagen underlined the ability of key GoK agencies, in particular MELAD and the OB, to work closely together to plan events on an international stage, as well as the extensive international interest in climate change in Kiribati.

The project successfully implemented all components of the ToR, and as a result, significantly improved the skills and capacity of key GoK staff to undertake climate change risk assessments and adaptation planning, as well as showcased the work of KAP at the Kiribati Side Event in Copenhagen, December 2009.

In concluding, a summary of key recommendations resulting from the project, as devised by both the Consultants and the Work Group are:

1. Ensure contour information is regularly updated to ensure outcomes from subsequent risk assessment work are accurate, and to inform more detailed planning and implementation of adaptation actions.
2. Work towards ensuring in-country capacity in GIS mapping and data analysis, modifying and converting data, and creating Google Earth files.
3. Ensure GIS data is regularly updated, particularly GoK infrastructure mapping data.
4. Conduct subsequent risk assessments in other parts of Kiribati, to inform adaptation planning. (This would need to be completed in conjunction with points 1-3 above, as GIS data is not available at present for the outer islands.)
5. Maintain the skills and expertise of the Working Group by ensuring members deliver technical support to existing climate change and disaster risk management groups.
6. Build on existing work undertaken to by moving towards specific village level adaptation assessment.
7. Build on existing knowledge and broader the current level of understanding among the Working Group by introducing more advanced adaptation concepts, such as thresholds for adaptation action.

1. INTRODUCTION

The Government of Kiribati is currently undertaking an Adaptation Program to address potential climate change risks. The World Bank, the Global Environmental Facility, AusAID and NZAID all support this adaptation program, which has the key goal to reduce Kiribati's vulnerability to climate change, climate variability and sea level rise. Program implementation is in three main phases, as detailed below.

Phase I: Preparation (2003-2005, completed). This phase began the process of mainstreaming adaptation into national economic planning and identifying priority pilot investments for Phase II. It also involved extensive national consultation. The project was closely linked with the preparation of the 2004-07 National Development Strategy and Ministry Operational Plans.

Phase II: Pilot Implementation (2006-2010). The objective this Phase is to implement pilot adaptation measures, and consolidate the mainstreaming of adaptation into national economic planning. (Phase II is the focus of this report.)

Phase III: Expansion (2010-2015). This phase will gradually expand the pilot that was developed under Phase II, to cover all major islands and vulnerable sectors in Kiribati.

The key objective of the current Pilot Implementation Phase, Kiribati Adaptation Program Phase II (KAP II), is to develop and demonstrate the systematic diagnosis of climate-related problems and the design of cost-effective adaptation measures, while continuing the integration of climate risk awareness and responsiveness into economic and operational planning. Lessons learned from KAP II will be used to plan the long-term national response to climate change envisaged for 2009/10 onwards.

1.1. Background

It is widely acknowledged that island nations around the world will be particularly susceptible to the impacts of climate change. Within the Pacific, Kiribati has been recognized as an area potentially at high risk (Figure 1). Under current conditions, this largely low-lying land mass is highly prone to storm surges and extreme high tides, as well as being exposed to strong winds and wave action (Hay and Onorio 2006).

The effects of this natural variability will undoubtedly be exacerbated by the effects of future potential climate change, in particular a rise in mean sea level. Population growth and development pressures will also act to compound the effects of physical change. The population of Tarawa, for example, is currently over 50,000 people and is continuing to grow. This population is concentrated within a relatively long, narrow corridor of land with an average width from north to south of 450 metres (Figure 1). Most of the land lies less than three meters above sea level. In addition, other areas, such as parts of Kiritimati Island, are beginning to experience similar population pressures (Hay and Onorio 2006).

Given the current situation, it is clear that Kiribati faces the pressing challenge of developing a systematic and integrated approach to coastal zone management. This approach must be built on an understanding that predicted future climate change impacts and risks will be superimposed on natural physical changes and an evolving coastal system, shaped primarily by human development.

The ToR for this project contributed to addressing this challenge by training GoK officials in climate change risk assessment and adaptation planning. The work follows from work

undertaken between 2007 and 2008 under KAP Component 1.3.2, '*Development of an Integrated Climate Change Adaptation Based Risk Diagnosis and Response Process'.*

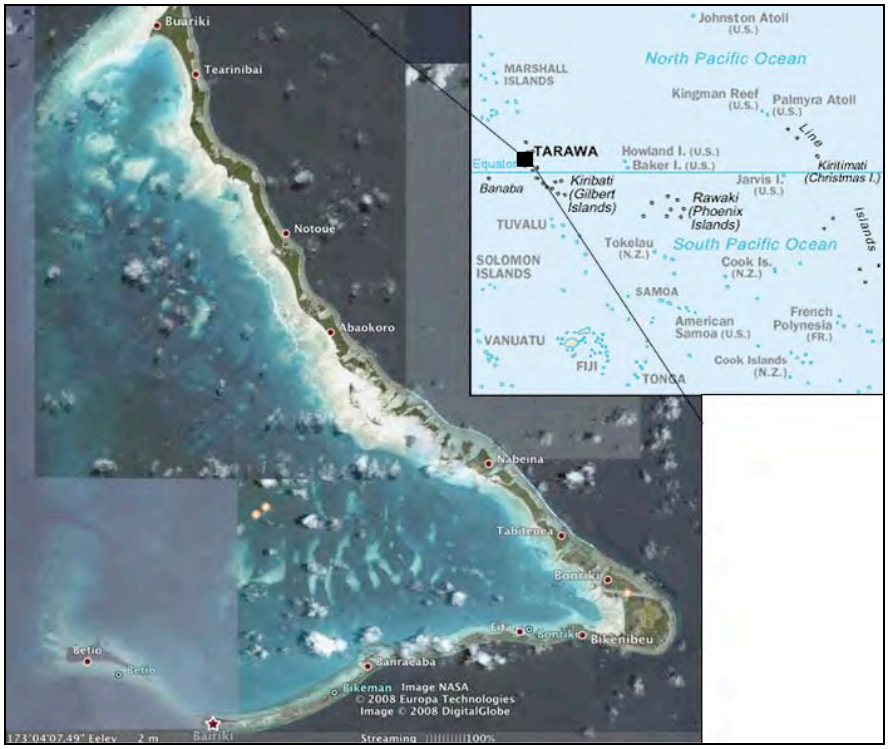


Figure 1: Map of Kiribati, with Tarawa inset

Previous work completed under Component 1.3.2 involved a review of existing legislation and institutional arrangements regarding coastal zone management and development of recommendations for improvement through an iterative process. This involved considerable consultation with the GOK officials from MELAD Lands and Environmental Conservation Divisions, MCCTD Kiribati Meteorological Service, MFMRD and MWPU, who all formed an inter-ministerial working group – the 'Working Group'. A staged institutional strengthening process was recommended, with a strengthened Foreshore Management Committee suggested as an important first step.

The development and trial of an approach to climate change risk assessment that was appropriate and specific to Kiribati was another important part of work undertaken. The joint AusAID-NZAID-World Bank Mid-Term Review (MTR) (November 11 to 18, 2008) highlighted the success of this approach. Furthermore, the MTR recognised how the approach had proved to be highly relevant and appropriate to the needs of GoK in advancing in-country understanding of the practical impacts of climate change and sea-level rise, and in generating usable data to inform future policy and make site specific decisions. It was clear that participating GoK officials did not feel confident enough with the methodology to be able to train others, or to compile inundation maps for the whole of South Tarawa. Gaining greater confidence would require further capacity building through practical training. It was recognised by the MTR that further work to embed and mainstream the developed methods into GoK processes and procedures would be very beneficial.

The current project's ToR responded to this identified need by underlining the need to provide further input into risk assessment capacity building in Kiribati. This report details the approach taken to build capacity and presents outputs from the capacity building activities undertaken. Further, additional activities were completed during ToR implementation, including support to Component 2.2.1: *Improving the Protection of Public Assets* and support

to the GoK to run a side event at the UNFCCC Conference of the Parties (COP 15) in Copenhagen, December 2009. The approach taken and the subsequent outcomes from these activities are also detailed herein.

1.2. Objectives

The primary objectives of the ToR were to:

- Build capacity and capabilities within GoK ministries (MELAD, MFMRD, Public Works) for climate change risk assessment and adaptation planning through a hands-on approach.
- Secure approval for a side event at the 2009 Conference of Parties (COP 15) at Copenhagen.

The climate change risk assessment capacity building activities aimed to provide participants with the skills to undertake risk assessment at two scales: island level (whole of South Tarawa) and village level. Village level assessments represented a more detailed risk assessment. The training intended to embed competencies and train staff to such a degree that they were then able to train others. The overarching objective was to up-skill government staff across GoK agencies to ensure that regular training could be provided in the long term to others. Capacity building activities were focused on existing Working Group members (i.e. those that participated in the original risk assessment training held during 2007-2008) and selected additional staff from the key agencies, thus enabling the Working Group to support and train their colleagues within Government agencies.

The specific aims of the COP side event were to:

- Showcase the achievements of KAP and GoK initiatives as a way of sharing knowledge, experiences and lessons learned with other countries.
- Recognise the importance of ongoing work in Kiribati in the face of critical island vulnerabilities to climate change and sea-level rise.
- Demonstrate as a case study the differential impacts that Greenhouse Gas (GHG) reductions would have on the future of South Tarawa, in this way, acting to pressure the large GHG emitters.
- Continue to maintain the high profile of the Government of Kiribati in international climate change negotiations.

To achieve all the ToR objectives, work was undertaken in close coordination with an additional component under KAP, Component 1.4 *'Information for Climate Risk Management'*. Component 1.4 was commissioned to undertake additional work to further the understanding and the application of the NIWA Coastal Calculator. The NIWA Coastal Calculator provided critical input into the risk assessment, being used to generate projections of potential sea-level rise in Tarawa. The Coastal Calculator was designed using the most recent climate science and information on coastal processes specific to Tarawa atoll. Therefore, it was important to ensure alignment between both aspects, achieved through joint training sessions and workshops. The aim was to demonstrate alignment between these two KAP components and ensure that participants had the skills to undertake all aspects of risk assessment.

In addition, an important part of the ToR was to support an international consulting company (BECA, New Zealand) to undertake KAP Component 2.2.1 *Improving the Protection of Public Assets*. The TOR for Component 2.2.1 specifically required the contractor to build on the foundations developed by Component 1.3.2. Therefore, there was a need to provide

opportunities to share information to ensure integration of activities undertaken in Component 2.2.1 with other, relevant, established sub-components under KAP-II.

1.3. Report Structure

This report is structured to ensure a logical and clear flow of information. The approach taken to meet project objectives is outlined in Section 2. This is followed by a presentation of the outputs that were developed to achieve the project objectives (Section 3). In Section 4 the ToR outcomes related specifically to the capacity building activities, are presented. Finally, lessons learned through ToR implementation (Section 5) and conclusions and recommendations for future activities (Section 6) are presented.

2. APPROACH

2.1. Capacity Building for Climate Change Risk Assessment

The climate change risk assessment focused on potential risk from rise in mean sea-level and inundation of low-lying areas. A number of steps were taken to complete the risk assessment and build participant capacity to carry out risk assessments. The steps ranged from gathering data to complete the assessment, to developing tools to support capacity building. The steps undertaken are detailed below.

2.1.1. DATA INPUT TO THE RISK ASSESSMENT

Generating Mapping Data

The focus of the assessment was on analysing the potential for inundation in low-lying areas. Therefore, detailed land height information was a vital input. The GoK had existing land height information (contour data) produced by Schlencker Mapping Pty Ltd in 1998 (through assistance from AusAID) showing land heights at 1 metre intervals. However, more detailed land height information was required[1] for the risk assessment. Consequently, Schlencker Mapping was commissioned to create detailed contour data for South Tawara showing land elevation at 10 centimetre intervals. However, it is important to note that the data was generated from the 1 metre contour data and therefore maintained a vertical accuracy of +/- 0.5 metres.

In addition, infrastructure and service data was obtained and updated as required for input into the assessment. The GoK provided the consultants with MapInfo data files for buildings, land use, roads and other services (for example, telecommunication cables, water and electricity lines) in South Tarawa. This information was converted into ArcGIS format and subsequently exported into Google Earth (KML files). The building files obtained from the GoK indicated the location of buildings but did not specify the type of building, i.e. no differentiation could be made between buildings allocated for commercial use versus those allocated for private use. This information was integral to the risk assessment because the 'use' of an area must be considered when determining what risks may be faced. Therefore,

[1] Projections for rise in mean sea level, obtained from the NIWA coastal calculator, were available to the nearest centimetre. Therefore, it was important to obtain more detailed land height information so the difference between projections for rise in mean sea-level could be analysed spatially.

the building data was analysed in conjunction with the land use cadastre to assign a 'building type' to each of the buildings on South Tarawa[2].

Increasing access to mapping data

During the initial risk assessment undertaken in 2008, access to mapping files and mapping expertise was an issue. There was reliance upon one staff member with mapping expertise to generate the risk maps that were applied to complete the risk assessment. Therefore, when this staff member had other commitments or fell ill, no work could be undertaken. In addition, paper maps were used to visualise the potential hazard extent. Consequently, environmental components were not included within the assessment as there were no existing mapping files indicating the location of environmental elements, i.e. mangroves or other vegetation.

At the time of the second risk assessment training, the GoK mapping information had not been updated and there was still only one government representative with the expertise to complete mapping work. Consequently, an alternate approach to visualize hazards and potential impacts was established to ensure broader information access to those undertaking the risk assessment activities.

Google Earth (www.earth.google.com) is a freely available interactive tool that can be used to visualize areas across the globe and can be installed readily on personal computers. The software contains recent satellite imagery that provides high-resolution imagery of Tarawa that can be used as a backdrop for the mapping work. Therefore, all mapping files were converted into a format compatible with the Google Earth program. This enabled participants to visualize the hazard extent and location of built infrastructure. In addition, mapping files for mangroves and other items, which were unavailable, could be viewed in the Google earth program and therefore included within the risk assessment. Finally, Google Earth is an interactive tool that allows participants to 'zoom in' to particular locations to view more detail. This was a vast improvement from the reliance on paper maps for completion of risk assessments.

Hazard Extent Data

Hazard extent data demonstrates the potential extent of impact that will result from a rise in mean sea level. This is an 'area' of land that will be impacted by particular scenarios of sea-level rise.

Projections for change in mean sea-level were generated by applying the Coastal Calculator tool[3]. The projection of sea-level rise at the year 2070, under the A1FI scenario for Mean High Water Springs (MHWS) and storm events, was generated relative to the same vertical datum (University of Hawaii datum) used in the contour mapping[4]. The output was a rise of mean sea-level from 2.09 metres to 2.61 metres in 2070 during MHWS, and a rise from 2.6 metres to 3.1 metres during storm events. These values represent the height of land that will be impacted (inundated) at 2070 if changes in global emissions follow the A1FI scenario.

To generate 'areas' of impact, the values of inundation were selected from the contour data file (as produced by Schlencker Mapping) and mapping files were created showing the

[2] Details on the modifications made to the data are presented in Appendix 1.
[3] The rate of mean sea level rise varies under different projections for climate change. However, there are uncertainties in the level of climate change that will occur. Consequently, the IPCC have released a range of climate projections that can be applied in risk assessments.
[4] The climate change scenarios for application in risk assessments in Kiribati were defined during the risk assessment training conducted in 2008. The list of specific climate change scenarios and timeframes for assessment for use in Kiribati are shown in Appendix 2.

selected inundation heights (see Figure 2 for example). Next, the areas below mean sea-level that did not have a direct connection to the ocean or lagoon were converted into polygon files so that they could be visualised more effectively (see Figure 3 for example). Finally, the files were converted into a format compatible with Google Earth.

The output was a 'hazard extent' map for MHWS and storm events under the A1FI scenario at 2070. This information was applied in the risk assessment[5].

Figure 2: Inundation land heights, 2070 A1FI + 1 in 10 year storm

[5] The A1FI scenario and the 2070 timeframe were selected for the risk assessment because they represent the highest potential hazard extent for the Kiribati scenarios. This ensures that all potential impact is analysed in the strategic risk assessment.

Figure 3: Inundation land heights, showing land situated below sea level, 2070 A1FI + 1 in 10 year storm.

2.1.2. TOOLS TO SUPPORT ANALYSIS AND BUILD CAPACITY

A number of tools were developed to support the analysis and build capacity. Handbooks outlining the approach to risk assessment and adaptation planning were developed, workshops were held, field visits were undertaken, and external mentoring support was provided through emails and telephone support. The approach to develop these tools is outlined below.

Handbooks

Two handbooks were developed to support the risk assessment and adaptation training. The risk assessment handbook was based on the Australian/NZ Standard for Risk Management (ISO 31000). The risk assessment framework contains five phases:

- Set the Context.
- Identify the Risk.
- Analyse the Risk.
- Evaluate the Risk.
- Treat the Risk.

The first four phases of the risk assessment framework were outlined in the Risk Assessment Handbook. The steps in each phase were updated and modified to reflect the availability of information, lessons learned during the first phase of the risk assessment training (undertaken in 2008) and improvements in climate change risk assessment.

The adaptation handbook covered the final phase of the risk assessment framework, Risk Treatment, also referred to as adaptation. The approach outlined in the handbook was tailored for the specific purpose of Coastal Hazard Risk Diagnosis and Planning (CHRDP) in Kiribati, was appropriate to country needs and recognised capacity constraints. Microsoft Excel template documents were created for use on participant's personal computers, which automated components of the multi-criteria analysis used to select adaptation options. The Excel templates were an additional component developed as part of the project to specifically support adaptation planning in Kiribati.

Workshops

Two workshops were held during project implementation. The first, the **Risk Assessment Workshop**, was held in August 2009. Representatives from a range of government ministries attended (see Appendix 3 for a list of workshop participants). The three-day workshop was delivered in conjunction with the consultant undertaking Component 1.4.0. By holding the workshops together, participants were able to apply the Coastal Calculator to generate projections of sea-level rise. These projections were then incorporated into the risk assessment and used to identify potential climate change risks associated with inundation in South Tarawa.

The Risk Assessment workshop reviewed the use and the application of coastal information and the associated coastal calculator. As part of this process, the Working Group spent time out in the field collecting information and gaining a better understanding of the parameters required for input into the calculator. Participants were also able to gain experience in visually assessing the coastline and identifying factors that may make certain sections of coast more vulnerable to coastal hazards.

In addition, participants were provided with the risk assessment handbook and applied the approach outlined to complete a risk assessment for South Tarawa. Training was also provided on developing risk ratings for discrete locations throughout South Tarawa (village level assessment).

The second workshop, the **Adaptation Workshop**, was held in November 2009. Participants from a range of government ministries attended (refer to Appendix 3 for participant list). The workshop was run as a two-day event and followed on from the Risk Assessment Workshop conducted in August 2009. The workshop provided participants with guidance to identify adaptation options applicable to treat the risks identified during the Risk Assessment. More specifically, the workshop contained numerous sessions detailing approaches to:

- Identify Adaptation Options.
- Evaluate Adaptation Options for Risk Treatment.
- Examine Constraints and Opportunities to Implementing Adaptation Options.
- Prioritise Adaptation Options for Implementation.

During the workshop, an adaptation plan was developed for South Tarawa and training was delivered that outlined the approach to develop adaptation plans for discrete locations throughout South Tarawa.

Establishing a GoK Risk Assessment and Adaptation Working Group

In order to instil capacity and generate increased confidence in undertaking risk assessment and adaptation planning, a Working Group was established. The Working Group consisted of representatives from a range of GoK ministries (see Appendix 4 for a list of Working

Group members). The role of the Working Group was to apply the tools developed to support risk assessment and adaptation planning (i.e. handbooks and excel support tools) to complete risk assessment for villages throughout South Tarawa and to verify results of adaptation planning.

The Working Group met at regular intervals to undertake risk assessment and adaptation planning. At the first meeting a work program was established, outlining meeting dates and the scope of works for each meeting.

The KAP Project Management Unit (PMU) played a critical support role for the Working Group. An allocated project support officer assisted in planning meetings, recording outcomes, organising field logistics and undertaking overall support activities. In addition, the Consultants provided on-going mentoring to assist with the completion of the assessments. The Working Group generated questions from each meeting and these were forwarded to the Consultants. The Consultants provided responses to each question and the responses presented back to Working Group members at subsequent meetings.

2.2. *Securing Approval for a Side Event at COP 15*

Work to secure the COP 15 side event was divided into two phases. The first phase included event design, ensuring alignment of event partners and confirming logistical arrangements. The online submission to the UNFCCC Secretariat of a request for the side event was the end of the first phase. The second phase consisted of event organisation including coordination of material to be showcased, arrangements for presenters, and media packages. Only the first phase of the COP event was covered under the current ToR. Therefore, the approach to this phase is outlined below (see the final report from TA *Preparation of the Kiribati Side Events and the Road to Copenhagen* for details on Phase 2).

2.2.1. EVENT CONCEPT

To achieve the aims of the COP 15 side event, a COP 15 Event Concept Note was prepared in close consultation with Government representatives. The Event Concept included a draft proposal for guiding the design and preparation of the event following approval by the UNFCCC.

The Event Concept Note was the initial communication tool for all those involved in appling for the event. It outlined the background to the event, aims of event, draft agenda, target audience, invitations and the Kiribati negotiation position. In developing the Event Concept Note, the following activities were undertaken:

- Research into the UNFCCC requirements for side event submissions, to ensure the Kiribati submission is in line with expectations, increasing the chances of approval.
- Brainstorming sessions with key stakeholders to establish a consistent message, aims and objectives for the event.
- A draft briefing note to political leaders in Kiribati, outlining the purpose of the event, proposed approach and benefits to be derived from participants in the event.
- Liaison with key stakeholders to gain support for the side event. Support from agencies involved in adaptation work in Kiribati was sought, including World Bank, AusAID and NZAID.
- Logistical arrangements were discussed with the KAP PMU and GoK staff.
- The production of a supporting DVD for use at the Side Event was discussed with the local video producers (Kirivid), based in Kiribati.

The outcome of the Event Concept Note was an agreed approach for the side event.

2.2.2. PROPOSAL SUBMISSION

Following consensus on the contents of the Event Concept Note, a submission to the UNFCCC was prepared in the appropriate format. The submission form was circulated to relevant stakeholders to gain approval, as appropriate. In addition, support was provided to the GoK to register their interest and submit the proposal to the UNFCCC, on 1 September 2009. The logistics of the submission process were determined well in advance of the submission date to ensure submission could occur as close to the opening deadline as possible. This included determining who was responsible for submission and a relevant contingency plan.

2.3. Consultation and Support to Component 2.2.1.

Support to the international consulting company selected to execute Component 2.2.1, BECA (New Zealand) was provided through a combination of external mentoring, briefing sessions and in-country professional advice.

All work completed for Component 1.3.2 was provided to the Component 2.2.1 consultants during their first visit to Tarawa in August 2009. This included all mapping data (which had been collected from a variety of GoK ministries during 2008) and technical reports. In addition, there was regular email contact to provide guidance on the activities planned and undertaken under the current ToR.

Furthermore, a joint meeting attended by BECA and CZM consultants was held with the Foreshore Management Committee to ensure GoK stakeholders understood the aims of each Component and the alignment between Components. The meeting held in November 2009 was well attended by Foreshore Management Committee members.

3. Outputs

This section of the report describes the outputs that were developed during the ToR implementation. All outputs align to the deliverables specified in the ToR and include:

Capacity building outputs

- Detailed contour maps with indicative contour spacing of 0.1m for South Tawara.
- Presentations and materials for workshop participants.
- A training manual on Climate Change Risk Assessment in Kiribati.
- A brief guide to adaptation planning.
- GIS-based permanent inundation risk maps for South Tawara (to be developed using the hazard maps and applying the risk assessment handbook).
- Completed risk assessments at Temaiku and Bikenibeu.
- GIS-based permanent inundation hazard maps for different timeframes and IPCC scenarios.
- A planning manual for use by GoK operational staff.
- Input into Component 2.2.1

Securing a GOK Side Event at COP 15

- Event Concept Note.
- Briefing for the Minister and stakeholders.
- Event submission.

The outputs are described in more detail and aligned to ToR objectives below. In many cases the outputs are not directly presented in this report due to the size or format of the output. In such cases, the outputs are outlined in this report and made available on the accompanying Appendix CDs.

3.1. Capacity Building for Climate Change Risk Assessment

Data for Input into the Risk Assessment: Detailed contour data

Detailed contour information was produced in two formats:

- Hard copy maps.
- Electronic mapping files.

The hard copy maps showed detailed land height information (0.1 metre intervals, accurate to +/- 0.5m) for villages throughout South Tarawa. The hard copy maps were provided to the KAP PMU. Soft copy maps are presented in the Appendix CD 1.

In addition, the electronic contour mapping files (0.1 metre interval) were provided a representative from the Lands Department (MPWU) and the KAP PMU. The Lands representative is responsible for maintenance of the Lands mapping data and the creation of spatial information for the Department, as he has skills in the use of MapInfo. The electronic contour mapping file is available in the Appendix CD 2.

Workshops: Presentations and Materials for Workshop Participants

Two training workshops were held during the project; the risk assessment workshop and the adaptation workshop (see Section 2 for further details). The content of workshop presentations and additional support material (for example, field worksheets and workshop agenda) were provided to participants. The files participants received are presented in Appendix CD 3.

Handbooks: Training Manual for Risk Assessment and Guide to Adaptation Planning

The risk assessment handbook provided guidance on an approach to coastal hazard risk diagnosis and planning (CHRDP) for the Republic of Kiribati. The approach outlined in the handbook was the most up-to-date method for conducting CHRDP in Kiribati[6] and focused on identifying the risks that may be faced due to long-term sea-level rise that would lead to permanent inundation and/or transient (storm induced) inundation in coastal areas. A method to determine the likelihood and consequence of risks associated with permanent (from mean sea-level rise) and transient inundation (from storms) was presented.

The adaptation handbook contained the approach to Risk Treatment. It contains a four step approach to selecting adaptation options to treat the identified risks. The handbooks provide a guide for participants to follow when conducting future risk assessments and adaptation planning, as they contain a descriptive account of the steps that must be undertaken in each assessment.

Overall, the Risk Assessment Handbook focused on answering the following:

- What are the risks?
- What coastal locations are at greatest risk compared to others?

While the Adaptation Handbook focused on answering the following:

- What actions can I take to reduce the identified risks?
- Where should actions be implemented?

The final handbooks were distributed to all workshop participants and the KAP PMU. Copies of the handbook are available in Appendix CD 4 (risk assessment handbook) and Appendix CD 5 (adaptation planning handbook). In addition, copies of the Excel templates produced to support adaptation planning are available on Appendix CD 5.

The GoK Working Group: Risk assessments for Temaiku and Bikenibeu and risk maps for South Tarawa

The Working Group was extremely proactive in undertaking the risk assessment activities. The group coordinated site visits and interviewed local residents to verify the outcomes of the risk assessment and inform risk assessment ratings. In addition, they produced a risk

[6] The approach presented in the handbook was updated from its original form (see the Risk Assessment Handbook, Volume I, developed during KAP Phase II, TOR 1.3.2 in 2008) to align directly with recent training and expertise gained by GoK officials in application of the Coastal Calculator (KAP Component 1.4.0). In particular, the handbook presented an approach to risk assessment for application at two spatial scales: whole of South Tarawa and village scale.

assessment report containing a summary of the approach and lessons learned from the work conducted. The report is available in Appendix CD 6.

It was originally proposed that the Working Group would complete the risk assessment for two case study sites: Temaiku and Bikenibeu. However, the Working Group was able to complete the risk assessment for these two villages, plus move through the risk assessment process for each of the villages in South Tarawa. The completion of additional risk assessment activities enabled the Working Group members to become increasingly familiar with the risk assessment process. Further, the risk ratings produced by the key Working Group members were applied to create a Risk Map for South Tawara. The Risk Map is presented in Appendix CD7.

Additional Tools and Support Materials

A number of additional tools and support materials were developed during the ToR implementation, including:

- Hazard Extent Maps for different timeframes and IPCC scenarios – Hardcopy A2 maps (provided to the KAP PMU) and soft copy maps (available in Appendix CD 8).
- A Planning Handbook (available in Appendix CD 9).

The outputs were additional support tools for climate change risk diagnosis and adaptation planning. The hazard extent maps highlighted the potential land affected by inundation due to sea level rise, for each of the I-Kiribati climate change scenarios.[7] The I-Kiribati climate change scenarios were selected by GoK representatives to support decision-making in Kiribati (see Appendix 2). The risk assessment and adaptation planning activities (as outlined in Section 2, Approach) were based on one climate change scenario and timeframe (A1FI, 2070). Therefore, these additional support tools provided the necessary resources for GoK representatives to make decisions based on alternate climate change scenarios and timeframes.

A handbook containing the projected inundation levels and hazard extents was also created as a tool to support land use decision-making in Kiribati (the Planning Handbook). The handbook contained high tide and storm tide levels around Tarawa, hazard extent maps and Google Earth mapping files for the A1FI scenario, for four future timeframes.

In addition to providing useful information for planning decision-making in Tarawa, the outputs from this activity provided high impact material for the side event at the Copenhagen COP 15 in December 2009 (refer to Section 3.2 for details).

3.2. Securing Approval for a Side Event at COP 15

Submission of an Event Concept Note (Appendix 6) and Briefing for Minister and Stakeholders (Appendix 7) facilitated broad support for the Kiribati side event. In addition, support provided to the GoK ensured that the Event Submission (Table 1) was successfully logged within the required timeframe.

The submission was approved by the UNFCCC and the Government of Kiribati was awarded a highly sought after position at the conference.

The activities undertaken following approval of the submission are captured in a separate TA, entitled *Preparation of the Kiribati Side Events and the Road to Copenhagen.* The report

[7] The I-Kiribati climate change scenarios and timeframes are presented in Appendix 2

outlines the success of the event and provides links to media reports on the event. The event was chosen for live webcast and can be viewed in full at the UNFCCC website:

http://www1.cop15.meta-fusion.com/kongresse/cop15/templ/play.php?id_kongressmain=1&theme=unfccc&id_kongresssession=2381

Table 1: Contents of the Side Event Submission

Required Field	Proposed Response
Submitting Organisation	Government of Kiribati
UNFCCC Status	Party
Name, email and mobile number of contact person on site	Tarsu Murdoch
Title and theme (max. 100/300 characters INCLUDING SPACES, any characters exceeding this limitation will automatically be cut off)	**Kiribati: Our road to Copenhagen.** We are first in line to face irreversible climate change impacts. Hear how our islands will change in our children's lifetimes and our plans to adapt. Learn from this practical experience. Join us and our partners in calling for a meaningful global response.
Preferred date and time (lunch/evening slot; 1st week/2ndweek)	Lunchtime slot preferred 1st week
Anticipated attendance	100-150 people

4. Outcomes

This chapter presents outcomes of the capacity building activities. Outcomes of the risk assessment and adaptation planning undertaken by the Working Group are presented here.

4.1. Capacity Building for Climate Change Risk Assessment

4.1.1. RISK ASSESSMENT

The risk assessment was conducted at two scales: island level (whole of South Tarawa) and village level. The South Tarawa risk assessment considered the potential impacts of sea-level rise on all of South Tarawa. It considered **what** risks are faced, but did not consider specifically **where** the risks were the highest. The village level risk assessment involved an analysis of impact within each village and the identification of risks specific to each village based on the impact within that location. The outcomes of the village level assessment showed **what** risks were faced, and also **where** risks were highest. The outcomes of each assessment are presented below.

South Tarawa Risk Assessment

A number of risks associated with inundation due to sea-level rise were identified in South Tarawa. The risks were categorised under three themes, including risks to environment, society and economy. The likelihood and consequence of each risk occurring was analysed based on a consideration of the level of impact, historic occurrence or past experience, and effectiveness of the current controls in place. The likelihood and consequence combine to provide an overall risk rating for each of the identified risks in South Tarawa. For further details on the approach used for the risk assessment, refer to the Risk Assessment Handbook (Appendix CD 4)

The results of the South Tarawa risk assessment are presented in Table 2. The highest priority risk for South Tarawa was a reduction in freshwater/drinking water quality due to a rise in the water table. A number of high priority risks were also identified. These risks were largely associated with risks due to a rise in the water table and salinisation of the ground water lens, damage to private property and loss of private land, and damage to or loss of cultural facilities.

Village Level Assessment

The village level risk assessment involved an examination of Google Earth hazard maps, field visits, and community consultation. The outputs of the assessment were the identification of the risks in each village and an overall risk prioritization rating for each village. The overall prioritization rating was based on a consideration of the range of risks within a village and the risk levels assigned.

The results of the village level assessment are presented in Table 7 (Appendix 5) and Figure 4.

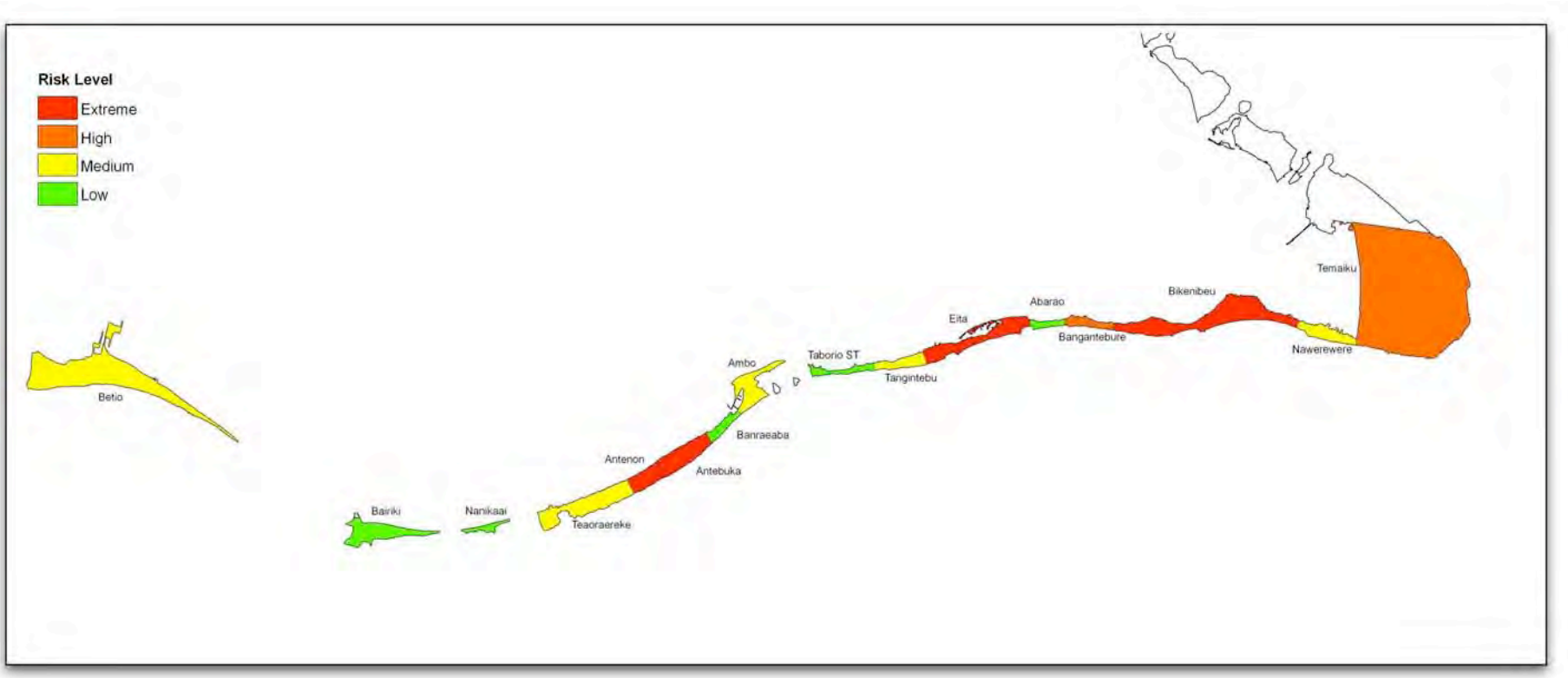
Table 2: South Tarawa Risk Assessment Results

Category	Impact	Associated Risk	Existing Controls	Consequence	Likelihood	Risk Level
Environment	Salinisation of ground water lens and decline in size of ground water lens	Reduction in freshwater/drinking water availability	None at present - under investigation	Very bad	Possible	High
		Cost of switching to more expensive sources	None at present - under investigation	Plenty bad	Likely	High
		Health risks from alternative sources	Water quality testing, education programs	Plenty bad	Almost certain	High
	Damage to mangroves	Increased coastal erosion	Mangrove rehabilitation programs	Plenty bad	Likely	High
		Loss of biodiversity	Educational programs	Plenty bad	Likely	High
		Loss of habitat for crabs/marine species - reduction in food availability		Catastrophic	Possible	High
	Rising water table	Reduction in freshwater/drinking water quality	None at present - under investigation	Very bad	Almost certain	Extreme
		Cost of switching to more expensive sources	None at present - under investigation	Plenty bad	Likely	High
		Health risks from alternative sources	Water quality testing, education programs	Plenty bad	Almost certain	High
Society	Damage to private property	Increased cost for maintenance and repair, replacement leading to increased financial stress on householders	Limited private insurance	Plenty bad	Possible	Medium
		Increased pressure on other areas due to migration	STP - Sustainable Towns Project	Plenty bad	Likely	High
	Loss of private land	Increased pressure on other areas due to migration	STP - Sustainable Towns Project	Plenty bad	Likely	High
		Overcrowding in areas	STP - Sustainable Towns Project	Plenty bad	Likely	High
		Reduction in the area available for household agriculture (food and animals)	None	Very bad	Unlikely	High
		Reduction in the quality of groundwater	None at present - under investigation	Very bad	Possible	High
		Human health decline due to overcrowding	Water quality testing,	Plenty bad	Likely	High

Category	Impact	Associated Risk	Existing Controls	Consequence	Likelihood	Risk Level
			education programs			
	Damage to government property (hospital, schools, government housing)	Increased need for government spending creating financial stress	Insurance - Kiribati insurance commission	Bad	Unlikely	Low
		Reduced government services (e.g. health and education)	Disaster Management Plan	Bad	Unlikely	Low
	Loss of land leased by government	Loss of economic opportunity	none at present	Bad	Unlikely	Low
		Reduced government services (e.g. health and education)	Disaster Management Plan	Bad	Unlikely	Low
	Damage to civil society - includes private schools, NGOs	Loss of services provided by civil society	none at present	Bad	Possible	Medium
	Loss of historical/spiritual sites	Loss of cultural practices/identify	none at present	Catastrophic	Unlikely	High
	Damage to cultural facilities – Maneaba, church	Loss of cultural practices/identify	none at present	Catastrophic	Unlikely	High
		Increased financial stress on communities and church groups to maintain and repair	none at present - limited fundraising overseas for some church groups	Bad	Likely	Medium
	Damage to services: water mains, sewerage, electricity	Increased repair and maintenance costs for government	none at present	Bad	Possible	Medium
	Damage and interruption to roads	Isolation of communities	none at present	Very bad	Likely	High
		Increase costs for maintenance and repair of transport routes	none at present	Bad	Almost certain	Medium
		Increased risk of accidents	none at present	Bad	Almost certain	Medium
		Increase costs for maintenance and repair of cars and road transport - so financial pressure	none at present	Not bad	Almost certain	Low
Economy	Loss of industrial/commercial land and/or buildings	Decline in GDP	none at present	Bad	Unlikely	Low
		Increased unemployment	none at present	Bad	Unlikely	Low

Category	Impact	Associated Risk	Existing Controls	Consequence	Likelihood	Risk Level
	Loss of agricultural land and crops	Decline in GDP	none at present	Bad	Possible	Medium
		Health decline due to reliance on imported foods	none at present	Bad	Possible	Medium
		Increased financial pressure	none at present	Bad	Unlikely	Low
	Damage and/or loss of major transport facilities – airport, ports	Isolation of community	none at present	Very bad	Unlikely	Low
		Severe economic loss to economy	none at present	Very bad	Possible	High
		Reduction in government services e.g. health service	none at present	Bad	Likely	Medium
		Service decline due to difficulty in obtaining goods from ports	none at present	Very bad	Unlikely	Low

Figure 4: Village Level Risk Assessment, Risk Map



The villages ranked at 'extreme' risk are:

- Antenon.
- Antebuka.
- Eita.
- Bikenibeu.

These locations contain some of the lowest lying land in South Tarawa. Consequently, the highest risks in these locations result from rise in the water table and potential associated decline in fresh/clean water availability and vegetation.

4.1.2. ADAPTATION PLANNING

Adaptation planning was undertaken to address the identified risks. Adaptation planning was conducted for South Tarawa and the villages ranked at high and extreme risk. The results of adaptation planning are presented below. Refer to the Adaptation Handbook (Appendix CD 5) for details on the approach taken to adaptation planning.

There were a number of adaptation options applicable to treating risks associated with sea-level rise and inundation of low-lying areas. The adaptation assessment involved evaluating the adaptation options to select options applicable to the risks identified in a particular location, and the risk levels associated with each risk. In addition, the barriers and opportunities associated with implementing an adaptation option were analysed.

The output was a list of adaptation options, which were prioritized for implementation according to an adaptation matrix (Figure 5). The adaptation matrix indicated the priority for implementing an adaptation option and the relative ease or opportunity afforded by implementing the option.

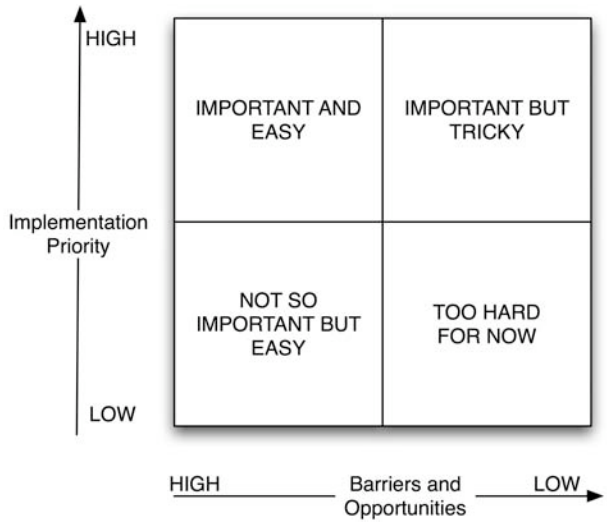


Figure 5: Adaptation Matrix

The adaptation matrix contains four categories with their titles developed jointly by the Consultants and the Working Group. Each reflects the importance of implementation and the potential barriers or opportunities to implementation (i.e. Important and Easy, Important but Tricky, Not so Important but Easy, Too Hard). The categorisation provides guidance on the actions for implementation, as follows:

1. Important and Easy: The adaptation actions within this category can be actioned immediately. They have limited barriers to implementation and will treat a number of high priority risks.
2. Important but Tricky: The barriers to adaptation must be addressed immediately to ensure that the actions assigned to this category can move across to the 'Take Action Now' category. The adaptation actions in this category treat a number of high priority risks and therefore it is important that they can be implemented.
3. Not So Important But Easy: Action may not commence on the adaptation options that fall within this category immediately (efforts will be focused on the *Important and Easy* adaptation options). However, when opportunities to support implementation of these options are apparent, action is required.
4. Too Hard for Now**:** The objective is to remove the barriers to implementation for the adaptation options in this category. However, efforts will be focused on removing the barriers to the '*Important but Tricky'* adaptation actions. However, when opportunities to remove barriers present themselves, action is required.

The outputs of the adaptation matrix guide the structure of the adaptation action plan. The adaptation matrix and adaptation action plan for South Tarawa is presented below.

South Tarawa Adaptation Plan

The adaptation options that should be implemented as a priority, according to the South Tarawa adaptation matrix (Figure 6) include:

- Adaptation Option D (*Ensure quality and validity of information sources for decision making*).
- Adaptation Option C (*Communicate with/educate the community on climate change risks and adaptation activities*).
- Adaptation Option M (*Review and update disaster planning and management*).
- Adaptation Option O (*Better drainage and storm water capture*).

The actions associated with each of these options are outlined in Table 3. In addition, the risks treated by implementing these adaptation options are also outlined. Each of the adaptation options treats a number of high priority risks. The full adaptation plan for South Tarawa is presented in Appendix CD 10. The adaptation plan should be read in conjunction with the adaptation matrix. The adaptation matrix contains the 'identification letter' of each adaptation option and the category for implementation for each option. Therefore the matrix provides guidance on implementing the adaptation options.

Village Level Adaptation Plans

Outputs of village level risk treatment can be two fold:

1. Informs implementation of adaptation options at the **national level**.
2. Informs **village level** prioritization of adaptation options.

The training undertaken in this project was focused on conducting the village level risk treatment to help prioritize the implementation of **national level** adaptation options. Thus, the focus of the village level assessment was to increase the level of detail in the South Tarawa adaptation plan, to help focus the delivery of national adaptation actions.

The development of a risk treatment plan that would help inform village level prioritisation of adaptation options would require extensive consultation at the village level to:

- Validate the risk ratings assigned in the national assessment.
- Identify and rank barriers and opportunities to adaptation in the village itself.
- Use this information to priorities adaptation options and assign responsibilities for implementation.

Village specific prioritization was beyond the scope of the current project. However, the risk treatment work undertaken by the Working Group followed a 'train-the-trainer' approach. Therefore Working Group members involved in the training have the skills and capabilities to guide and facilitate village level assessments.

The output of village level adaptation planning conducted for this project was an adaptation matrix for each of the high and extreme risk villages (Figure 7). The adaptation matrixes provide information to guide implementation of the adaptation actions. By reviewing the adaptation matrixes for each village, implementation of adaptation actions is prioritised according to the areas where there is the highest net benefit. This is in areas where the option treats the highest number of high risks and faces the least barriers to implementation. The templates applied to develop each adaptation matrix are presented in Appendix CD 11.

Figure 6: South Tarawa Adaptation Matrix

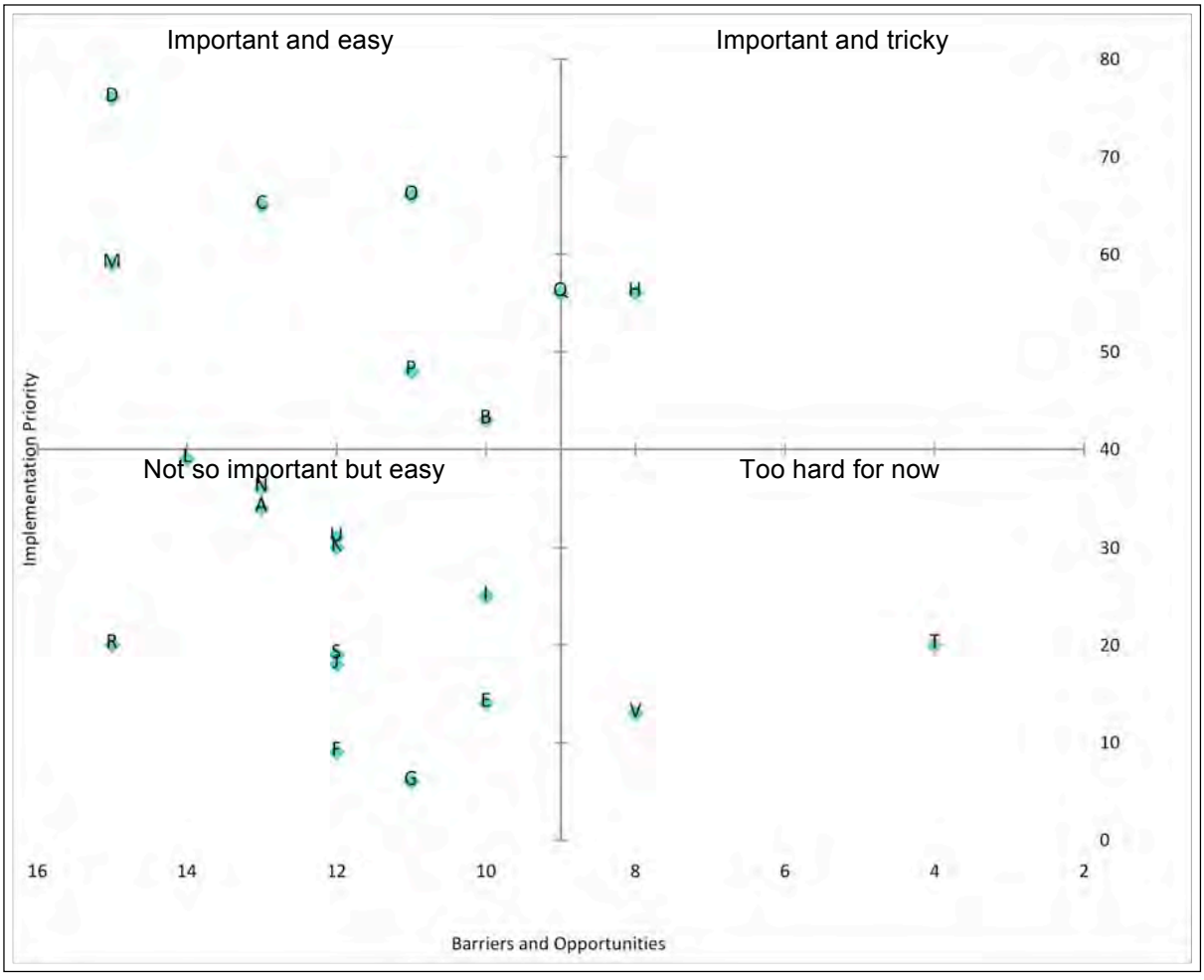


Table 3: Priority adaptation options for South Tarawa (Important and Easy) and associated actions

Prioritisation ID	Adaptation Option	Adaptation Actions	Ministerial Responsibility	Risks Treated by implementing the adaptation option
C	Communicate with/educate the community on climate change risks and adaptation activities	1. Review options to disseminate results of the risk assessment to the community 2. Create a Climate Change Communication Strategy – envisioned as a 5-year plan. Information and awareness raising for: the outcomes of the current research; the importance of monitoring aiming for volunteer support; adaptation actions that can be taken by individuals to increase their resilience to the potential impacts of climate change 3. Monitor outcomes of the KAP Curriculum Development Resource project for climate change modules	MCTTD	Risk 1,risk 2, risk 3, risk 4, risk 5, risk 6, risk 8 , risk 9, risk 10, risk 11, risk 12 ,risk 14, risk 15, risk 16, risk 17 , risk 18, risk 24, risk 25, risk 26, risk 27
D	Ensure quality and validity of information sources for decision making	1. Review most recent climate change information at a regional and local scale as it becomes available 2. Communicate state-of-knowledge regarding climate change and climate related risks across all Ministries 3. Ensure that there is regular review of existing and potential technology that may increase information and aid decision-making. 4. Maintain open dialogue with regional organisations (i.e. SOPAC) to ensure transferability/continuity of all pertinent information to be used in decision making process as it relates to climate change adaptation	All Ministries because there is no one ministry responsible to provide information	Risk 1,risk 2, risk 3, risk 4, risk 5, risk 6, risk 8, risk 9, risk 10, risk 11, risk 12, risk 14 , risk 15, risk 16, risk 17, risk 18, risk 19, risk 20, risk 21, risk 24, risk 25, risk 26, risk 27, risk 28
M	Review and update disaster planning and management	1. Request information on the step-by-step actions that would be required in a disaster situation. For example, evacuation measures, informing businesses of risk etc 2. Ensure that the disaster response plan is adaptively managed. Review plan regularly to ensure response options incorporate current climate change information 3. Identify alternative options should the existing building and infrastructure be impacted upon in order to maintain services and connections	OB, MELAD	Risk 1,risk 2, risk 3, risk 4, risk 5, risk 6, risk 7, risk 8, risk 9, risk 10, risk 11, risk 18, risk 19, risk 21, risk 22, risk 26, risk 27, risk 28
O	Better drainage and storm water capture*	1. Investigate drainage improvements at all known flash flood points 2. Upgrade storm water infrastructure using water sensitive urban design methods and ensuring that modeling caters for climate change	MPWU, MISA, MELAD	Risk 1,risk 2, risk 3, risk 4, risk 5, risk 6, risk 7, risk 8, risk 9, risk 10, risk 11, risk 12, risk 13, risk 14, risk 15, risk 17, risk 18, risk 20, risk 21, risk 22, risk 23, risk 26

Risks: Red = Control Critical, Orange = Active Management, Blue = Periodic Monitoring, Yellow = No major concern.

RISK1	Reduction in freshwater/drinking water availability
RISK2	Cost of switching to more expensive sources
RISK3	Health risks from alternative sources
RISK4	Increased coastal erosion
RISK5	Loss of biodiversity
RISK6	Loss of habitat for crabs/marine species - reduction in food availability
RISK7	Increased cost for maintenance and repair, replacement leading to increased financial stress on householders
RISK8	Increased pressure on other areas due to migration
RISK9	Reduction in the area available for household agriculture (food and animals)
RISK10	Reduction in the quality of groundwater
RISK11	Human health decline due to overcrowding
RISK12	Increased need for government spending creating financial stress
RISK13	Reduced government services (e.g. health and education)
RISK14	Loss of economic opportunity
RISK15	Loss of services provided by civil society
RISK16	Loss of cultural practices/identify
RISK17	Increased financial stress on communities and church groups to maintain and repair
RISK18	Increased repair and maintenance costs for government
RISK19	Isolation of communities
RISK20	Increase costs for maintenance and repair of transport routes
RISK21	Increased risk of accidents
RISK22	Increase costs for maintenance and repair of cars and road transport - so financial pressure
RISK23	Increased unemployment
RISK24	Decline in GDP
RISK25	Health decline due to reliance on imported foods
RISK26	Increased financial pressure
RISK27	Severe economic loss to economy
RISK28	Service decline due to difficulty in obtaining goods from ports

The results of the village level adaptation assessment are presented in Figure 7. The adaptation matrixes show the differential priority of implementing an adaptation option in each village.

Within each matrix, the values assigned to the barriers and opportunities for implementation remain the same. This is because the assessment is undertaken to prioritise implementation of national level adaptation options. Consequently, the barriers to implementation remain the same as the national level outputs (as shown in the South Tarawa Adaptation Assessment).

Consequently, only the implementation prioritisation varies between villages. Therefore, the adaptation matrixes can be examined to determine which adaptation options are a priority for each village, based on the risks faced in that village and its risk level. This knowledge provides guidance on where the national level adaptation options should be implemented as a priority.

For example, the South Tarawa adaptation matrix (Figure 6) indicates that the highest priority adaptation options (the options that treat the most high priority risks and face the least barriers to implementation, in the top left quadrant of the figure) are:

- Adaptation Option D (*Ensure quality and validity of information sources for decision making*).
- Adaptation Option C (*Communicate with/educate the community on climate change risks and adaptation activities*).
- Adaptation Option M (*Review and update disaster planning and management*).
- Adaptation Option O (*Better drainage and storm water capture*).

Given the nature of coastal management in Kiribati, it is recognised that not all adaptation options can be implemented across Kiribati simutaneously. Rather, they will have to be implemented on an 'as needs' basis, prioritised by risk level. To determine where adaptation options should be implemented as a priority, the adaptation matrix for each of the high and extreme risk villages should be examined.

The priority for implementation is indicated by the position of an adaptation option within the adaptation matrix. The closer an option is to the top of the adaptation matrix, the higher the priority for implementation. However, it is also important to note that the further the option lies to the right hand side of the matrix, the more barriers it has to implementation. For example, in Bwangantebure, the options D and O are the highest priority, but option D faces fewer barriers to implementation than O. Consequently, it will be important that the barriers to implementing better drainage and storm water capture (option O) are addressed to ensure that the potential impacts of climate change can be managed in this village.

To evaluate where the national level adaptation options should be implemented as a priority, the values assigned to the 'implementation prioritisation' for each of the high and extreme risk villages can be analysed. A line graph clearly indicates the differential priority for adaptation options per village (Figure 8).

It is important to remember that the adaptation prioritisation rating (AIP) is defined by:

- The number of risks in a village.
- The risk level of each risk in the village.
- The ability of an adaptation option to treat the risks in a village.

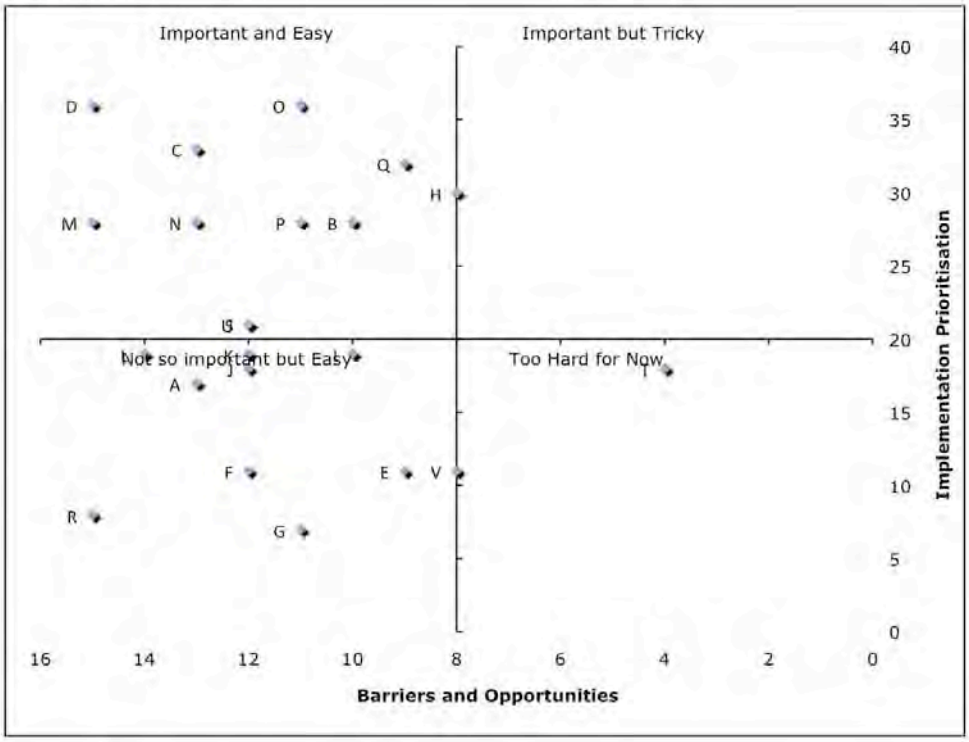
Therefore, the higher the number of high priority risks in a village, the higher the AIP rating. The code assigned to each adaptation option is provided in Table 4.

Table 4: Adaptation options and associated ID codes

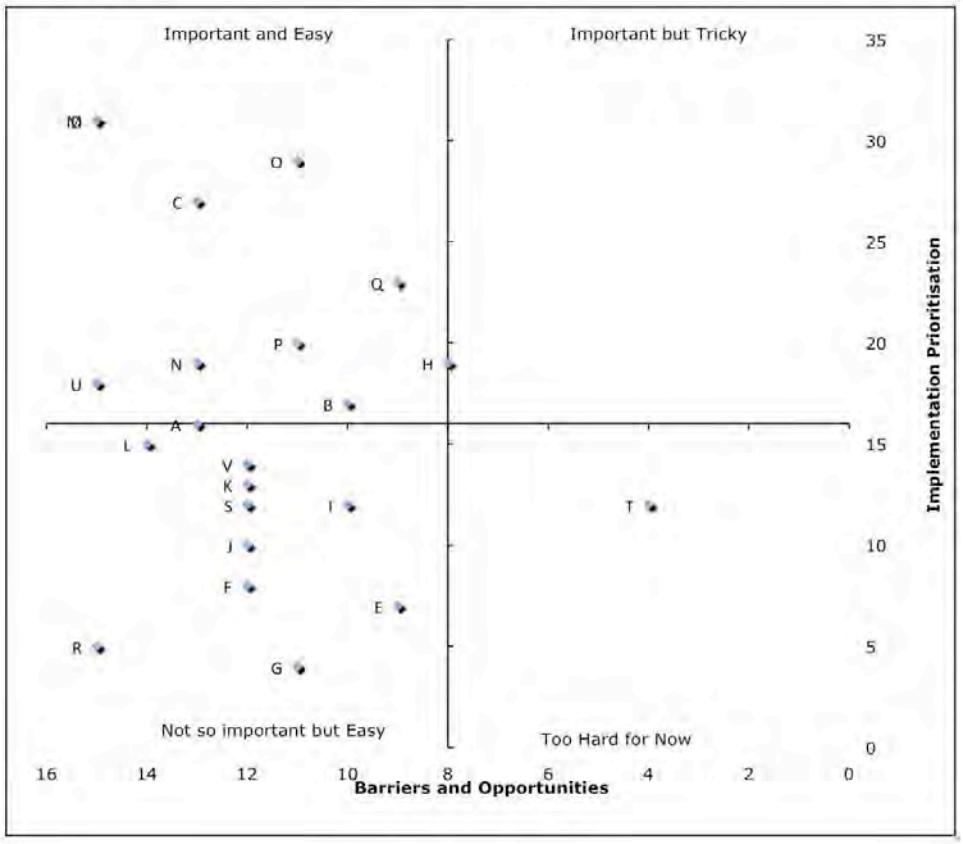
ID	Adaptation Option
A	Disseminate information on implications of identified risks of climate change within South Tarawa to relevant Ministries and strengthen the profile of climate change within key Ministries
B	Establish/strengthen relationships with the local community to facilitate monitoring activities, raise awareness and participate in adaptation strengthening activities
C	Communicate with/educate the community on climate change risks and adaptation activities
D	Ensure quality and validity of information sources for decision making
E	Develop a coastal monitoring program, which includes mainstreaming of adaptation measures across all Ministries (applies to existing and planned monitoring activities)
F	Analyse tools to enhance enforcement activities undertaken by Ministries. The aim is to ensure an integrated and transparent approach to enforcement of coastal protection
G	Complete research into the social and cultural aspects of climate change
H	Review the structural integrity of existing defence structures*
I	Monitor changes in condition of structures so that any modifications/retrofitting occurs on time and prior to failure
J	Review and amend design specifications (retrofitting existing developments and provisions for new developments)
K	Incorporate climate change scenarios into policy and decision making processes
L	Modify Ministerial planning approval processes
M	Review and update disaster planning and management
N	Develop a foreshore management plan
O	Better drainage and storm water capture*
P	Investigate design and costing of protection measures including guidelines established for review and approval of hard structural options
Q	Scale up coastal protection measures*
R	Protect species/ecosystems through active management controls, as appropriate*
S	Review household and government insurance mechanisms
T	Migration of People away from High Risk areas*
U	Elevate the ground level as a structural approach to managing the potential impacts of climate change
V	Install desalination Plant

Figure 7: Village Adaptation Matrixes

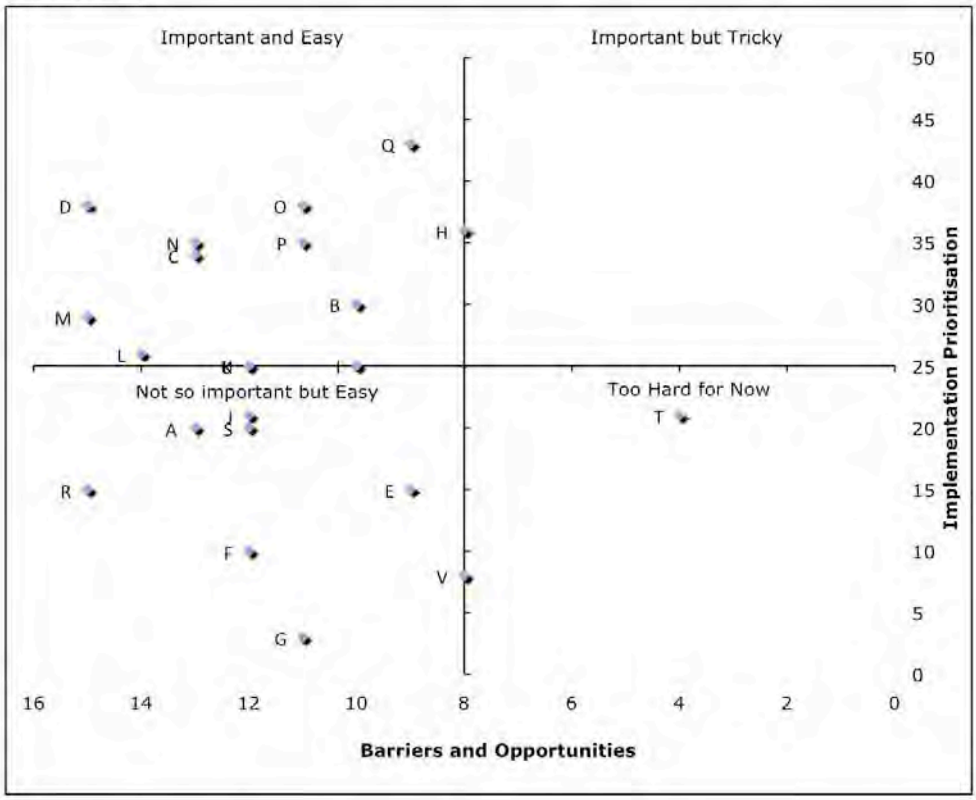
ANTEBUKA



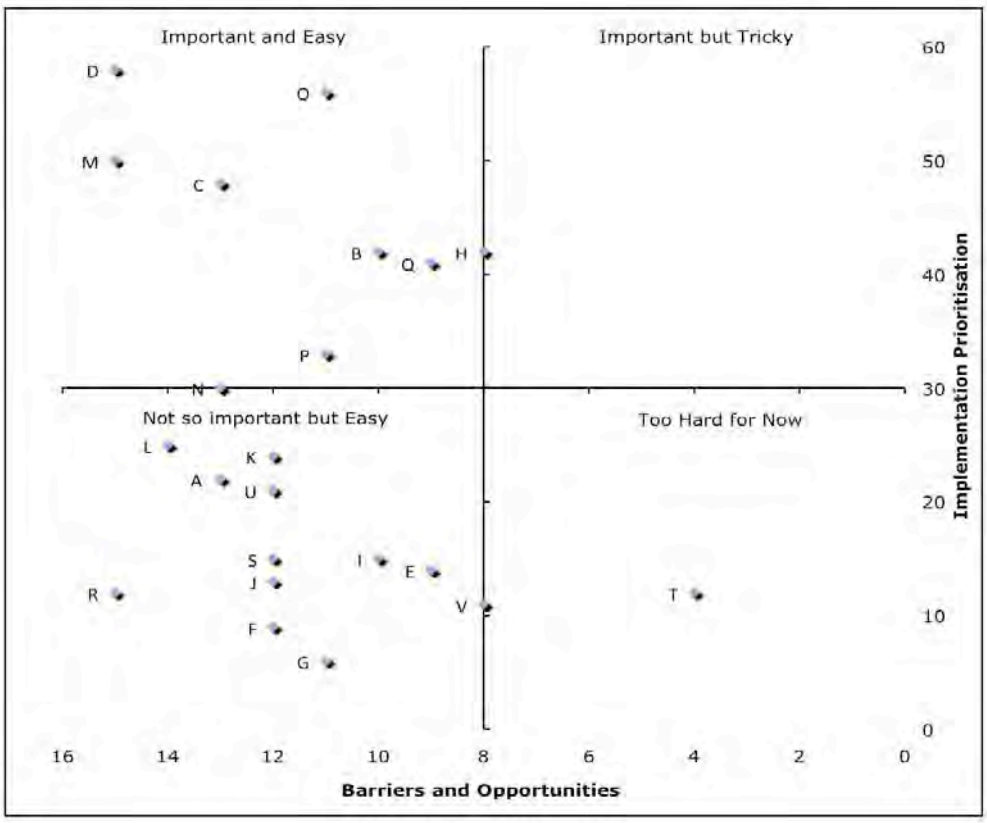
ANTENON



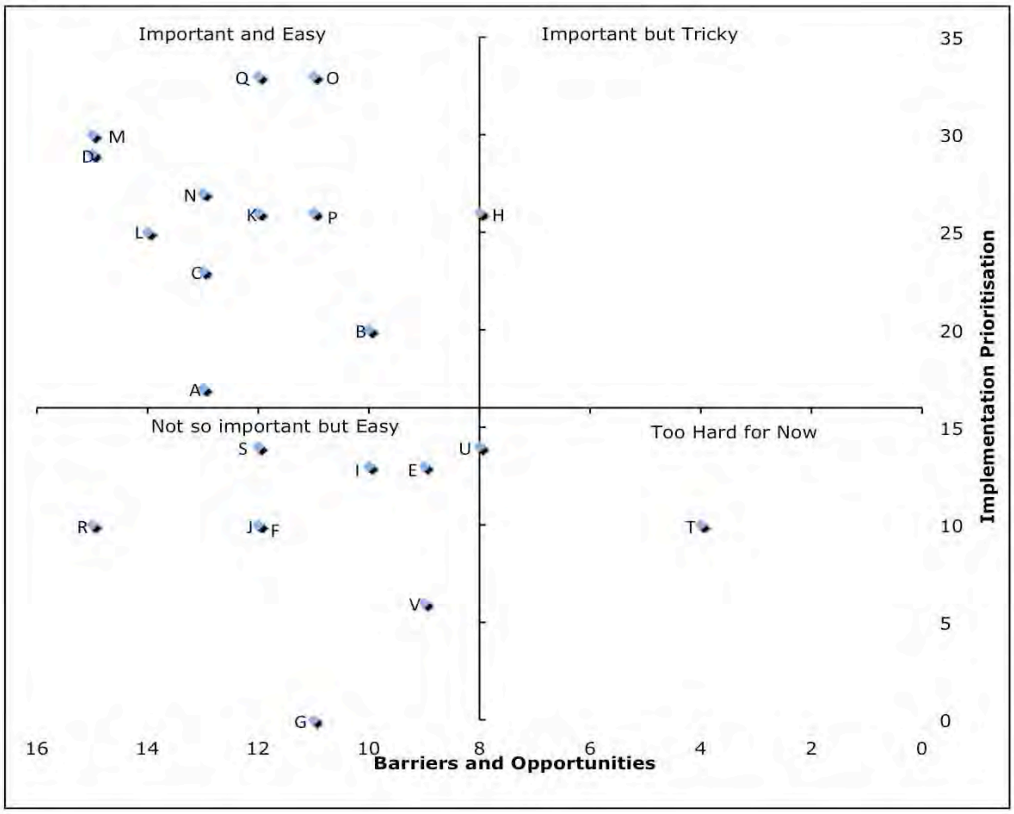
BIKENIBEU



BWANGANTEBURE



EITA



TEMAIKU

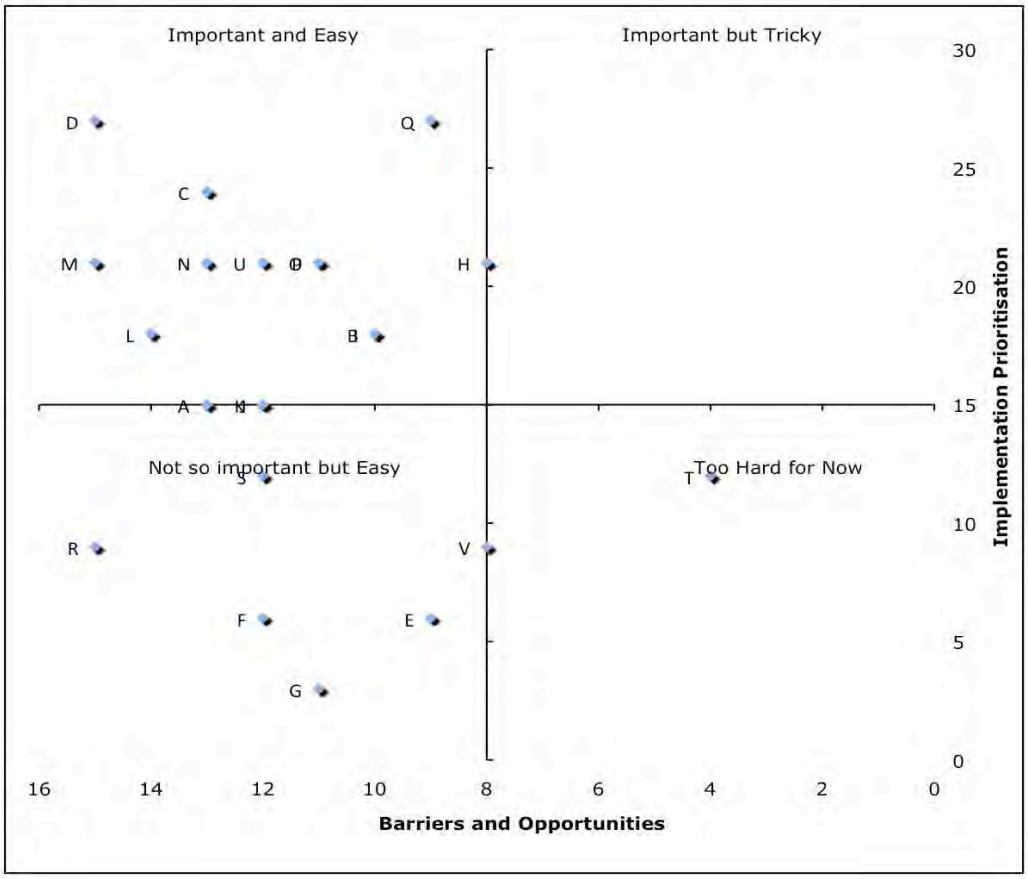
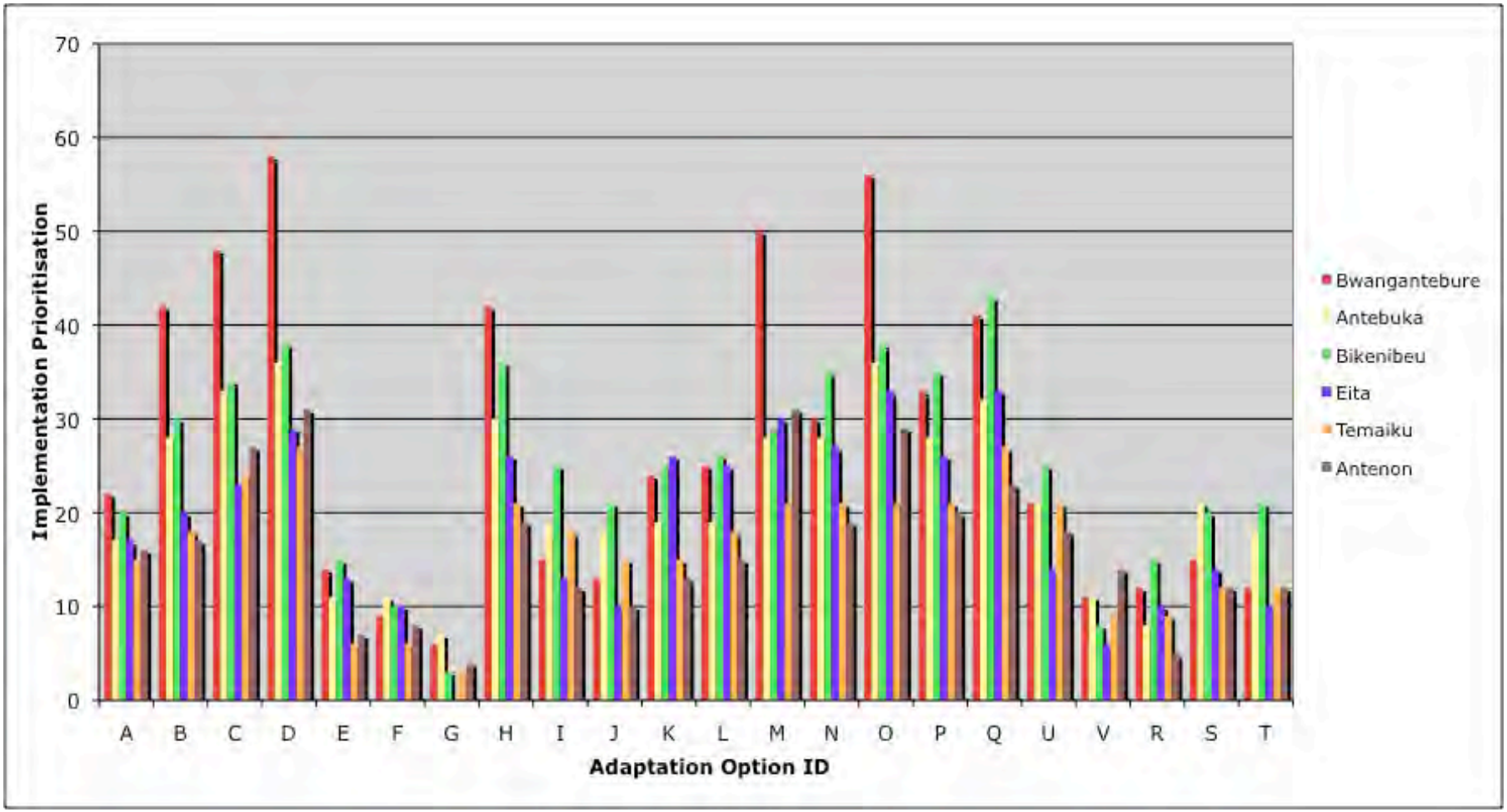


Figure 8: Implementation prioritisation rating for each adaptation option in the villages ranked as at high or extreme risk from the potential impacts of sea level rise



The adaptation options used in the adaptation planning can be separated into two categories (Table 5):

- Actions that build adaptive capacity.
- Actions that deliver adaptation actions.

The actions that build adaptive capacity are applicable throughout South Tarawa, and often treat a high number of risks. Conversely, adaptation actions are commonly targeted in high risk areas, as they require increased investment for implementation.

Table 5: Categories of adaptation (following UKCIP 2006)

Adaptation Category	Sub Category	Example Actions
Building adaptive capacity	Creating information	Research Data collection and monitoring Awareness raising
	Supportive social systems	Organisational development Working in partnership Institutions
	Supportive governance	Regulation Legislation Guidance
↓	↓	↓
Delivering adaptation actions	Offset loss by sharing or spreading risks or losses	Insurance Sharing cost of response Relief efforts
	Preventing effects or decreasing risks	Change use or location Build resilience
	Exploit positive opportunities	Introduce new or develop previously limited activities, species
	Accept the impacts or bear loss	

A majority of the adaptation options outlined in this assessment contribute to building adaptive capacity (Figure 9). The options provide GoK with the resources to start delivering adaptation actions. For example, adaptation option S '*Review household and government insurance mechanisms*' will build adaptive capacity as it is based on information gathering and research. However, following the **review** of insurance mechanisms, the Government will be in a better position to **implement** insurance mechanisms (an adaptation action) to increase resilience to climate change.

Analysis of the village adaptation matrixes (Figure 7) and the implementation prioritisation across South Tarawa (Figure 8) indicates:

- Implementation of the adaptation options that will deliver adaptation actions are focused in the villages rated as extreme risk. For example, adaptation option J 'Review and amend building codes', O 'Better drainage and storm water capture' and T 'Migration of people away from high risk areas' should be implemented in Antebuka and Bikenibeu as a priority. While adaptation options Q 'Scale up coastal protection

measures' and R 'Protect species/ecosystems through active management controls' should be implemented in Eita and Bikenibeu as a priority.

- Antenon is also an 'extreme risk village'. In fact, field notes taken by the Working Group of identified Antenon as particularly susceptible to inundation due to the current extent low lying land in the village. Adaptation option M "Review and update disaster planning and management" is rated as a highest priority for this village.
- A majority of the adaptation options presented in each village matrix (Figure 7) lie on the left hand side, indicating that the options do not face significant barriers to implementation, or that the opportunities derived through implementation are significant. This is a positive result.

Overall the adaptation matrixes (Figure 7) and the implementation prioritisation for each village across South Tarawa (Figure 8) provide guidance on where national level adaptation options should be implemented as a priority.

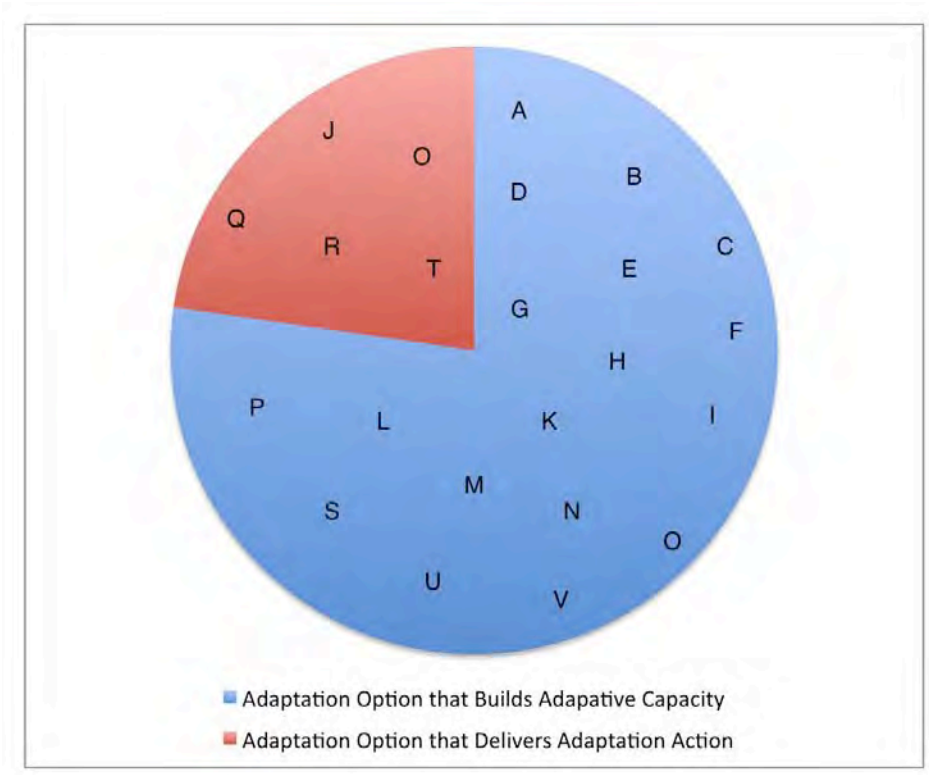


Figure 9: Adaptation options aligned to adaptation categories

Note: See Table 4 for descriptions of the adaptation options in each category.

5. LESSONS LEARNED

The Consultants reflected on the process, approach and outcomes of the project to develop a number of lesson learned. In addition, discussions were held with the PMU and a dedicated Lessons Learned session was held during the Adaptation Workshop. The objective was to collate a list of lessons learned from project implementation, both from the perspective of the Consultants and those involved in the training sessions. The key lessons learned include:

Capacity Building

- There was a demonstration of significantly enhanced skills and experience in risk assessment and adaptation planning from the previous activities in 2007-2008. This was a clear demonstration of the value of extending Component 1.3.2 activities.
- There was a transition experienced between the first and second workshops. The Working Group started to work autonomously, taking on increased roles and responsibilities beyond the tasks envisaged of them. For example, field visits and community consultation were undertaken by the Working Group through their own initiative.
- As the Working Group gained knowledge and confidence, ownership over the outcomes of the risk assessment increased. Upon their own directive, the Working Group considered how the outcomes of the risk assessment may be applied and thus become aware of issues that could be addressed during the analysis phase to ensure a smooth transition into implementation. The risk assessment outcomes were considered very important to the local community and therefore, it was vital to incorporate community concerns and knowledge into the risk assessment process. This was achieved through field visits and communication consultation.
- The tasked approach and external support provided by the Consultants increased impetus for ownership of the risk assessment outcomes to the Working Group. It is believed that on-ground support, whilst providing benefits, may not have facilitated the level of engagement and ownership that was achieved by the Working Group. Due to the lack of external support during Working Group meetings, members had to take increased responsibility to support the group. This resulted in the formation of Working Group leaders, who were able to provide guidance and direction to members.
- The range of capacity building activities (i.e. workshops, set tasks/activities post workshop, and mentoring support) were complementary and reinforcing. The workshops provided the first level training to re-instill the approach to risk assessment and adaptation planning, while the post workshop activities undertaken by the Working Group ensured confidence was gained through repeat application of the process and through collegiate support. This was aided by use of the handbooks and ongoing professional mentoring from the Consultant team.
- The support provided by the KAP PMU to the Working Group was an important factor in achieving the outcomes.

Data for Input into the Risk Assessment

- The enhanced contour information (10 cm vertical resolution) was deemed useful to be applied in the risk assessment process by the Working Group, despite its limitations of +/- 0.5m vertical accuracy. The usefulness of the data for application in the risk assessment was validated by the Working Group through field verification, where areas of land predicted to be inundated were currently experiencing periodic

inundation. However, the Working Group clearly recognised the need for accurate land height information to increase certainty in the risk assessment outcomes and in so doing, move beyond strategic adaptation options to site-specific implementation.

- The handbooks were updated to reflect an approach to the risk assessment and adaptation planning that was streamlined, based on experience gained in 2007-2008 during the first stages of the KAP II project. This included removal of consideration of coastal erosion (driven by analysis of coastal sensitivity), changes in adaptation option selection criteria, and simplification of the relationship between the number and type of risks and their treatment options. The Working Group members involved in the training in 2008 commented that the updated handbooks provided an approach that could be implemented in-country without additional external support. This suggests that implementation of approaches to risk assessment and adaptation planning must be staged, providing strategic approaches to incorporating more complex concepts such as 'thresholds' for change and 'coastal drivers/sensitivity'. However, it is important to ensure that these additional concepts are introduced at later stages, as capacity is developed and knowledge is gained.
- There was a vast improvement in the dissemination of mapping information through the production of Google Earth mapping files, which significantly improved access to required information. The Working Group was able to use the Google Earth files without being reliant on specialist mapping software. This is an important tool that should be utilised in future assessments.
- The Working Group noted the need for GoK mapping data to be updated. For example, service information (power lines, water pipes) was outdated and could not be viewed in the Google Earth software, because of its underground location. It was deemed important to update mapping data to enable all risks to be accurately accounted for in the risk assessment.

Side Event

- The project demonstrated the ability of key GoK agencies, in particular MELAD and the OB, to work closely together to plan events on an international stage.
- The successful acceptance of the event demonstrated both the professionalism of the submission and the important role that Kiribati plays in highlighting the vulnerability of island nations to climate change and sea-level rise.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1. Conclusions

The project successfully implemented all the required components of the ToR. As a result, the project effectively improved skills and capacities across GoK agencies in undertaking climate change risk assessments and adaptation planning.

It is concluded that the success of the project was due to the combination of a number of key factors, including the:

- Ability of the Consultants to learn from previous work under Component 1.3.2 to tailor the methods, tools and supporting resources to implement the risk assessment. The tailored approach facilitated uptake and increased ownership of the process by key stakeholders.
- Flexibility of the Consultants to respond to requests from the Working Group. The established relationship between the Consultants and the Working Group members ensured that any additional requests, which would support members in undertaking the risk assessment and adaptation planning, were addressed in a timely and responsive manner. For example, due to logistical problems[8] the Working Group requested additional hazard extent maps to be created by the Consultants to ensure activities could proceed whilst logistical issues were addressed.
- The professionalism and dedication of Working Group members, in particular their willingness to learn and apply risk assessment approaches to climate change vulnerability assessment in Kiribati.
- Logistical support provided by the KAP PMU in supporting the Working Group.
- Consultants willingness and flexibility, collaboratively working on other required components (2.2.1 and 1.4.0) to achieve the best possible outcomes for KAP II overall.

6.1.1. Working Group Conclusions

The Working Group undertook a separate evaluation of the outcomes of the risk assessment process. The Working Group members concluded that, based on the risk assessment activities undertaken, Kiribati is already facing some challenges of future sea level rise predicted to be happening in 2070s. The members further stated that the likely impact of the 2070 predicted sea levels could be experienced faster and could be of more extreme risk than currently assumed based on the risk maps.

In conclusion, the Working Group, in their presentation on the outcomes of the project to the NASC stated:

"We now have a better understanding on the risk assessment process. The risk assessment outcome is very useful and will assist with decision and policy making for Kiribati."

6.2. Recommendations

The lessons learned through this project have enabled the development of a number of recommendations that will ensure increased capacity in Coastal Hazard Risk Diagnosis and Planning for the Government of Kiribati. In addition, the GoK Working Group outlined a

[8] The Google earth program was not available to the group during the first meeting.

number of recommendations specific to undertaking the risk assessment activities. The Working Group recommendations are presented, followed by additional recommendations.

6.2.1. Working Group Recommendations

1. Update contour maps

The contour information applied in the risk assessments only had a vertical accuracy of +/- 0.5 metres. While the Working Group acknowledge that the contour information was accurate for the purposes of the strategic risk assessment (refer to Appendix CD6), it was noted that to increase the certainty of results, and to inform more detailed planning and implementation of adaptation actions, there was a need to gather more detailed information on land heights throughout Tarawa.

2. Handbook on GIS mapping; modifying and converting data, creating Google Earth files

Mapping activities undertaken during project implementation included:

- Obtaining high resolution contour data
- Modifying contour data to create inundation data files
- Converting the data files (both those created and data files obtained from the Government of Kiribati) into a readily accessible format, i.e. conversion of data files from Shapefile (ArcGIS) to KML (Google Earth) format.

The mapping activities were completed by CZM Pty Ltd. This was due to limited GIS skills in-country (only one government staff member had the required mapping skills) and the deliverable timeframes for the current project. Whilst all mapping information was transferred to the Working Group, it is recognised that as data in country is updated, the need for skills in GIS to ensure that it can be readily applied in the risk assessment process will be greater.

3. GIS training – GIS user group

As above, there is the need to up-skill Government of Kiribati staff in the use of mapping programs, such as GIS.

4. Updating GIS data; GIS user group keep updating their data

The group recognised that the Government of Kiribati mapping data (for example, water lines, electricity lines, and buildings) was outdated. The number of houses and associated service supplies in Tarawa has increased significantly since the data was created. While Google Earth was useful in outlining the location of additional housing and roads, underground service could not be updated. Therefore, it was recommended that following the up-skilling of GIS users (and the formation of a GIS user group) the mapping data be updated.

5. Replication of the exercise to other part of Kiribati

The risk assessment process was considered to be a valuable tool for planning to adapt to the potential impacts of climate change. It was recognised that this tool should not be limited to Tarawa, but should be applied throughout Kiribati. However, while GIS data is available for Tarawa, similar data is not available for the outer islands. Therefore, it is recommended that GIS data be created for the outer islands, as appropriate, for use in future risk assessments.

6. Maintain the Working Group

The Working Group suggested that the members could provide technical support to established units/groups/bodies responsible for disaster risk management in Kiribati (for example, the Disaster Risk Management Unit and/or Climate Change Steering Committee).

6.2.2. Recommendations

In addition to the recommendations outlined by the Working Group, it is recommended that:

1. Repeat activities organised for working group members to ensure skills are maintained and enhanced.

The formation of the Working Group as a 'technical arm' of established units/committees operating in Kiribati would ensure that the group continues to apply their skills in risk assessment and adaptation planning. In addition, implementation of the recommendations presented in Kay (2008), to enhance institutional structures and increase support for coastal planning and management throughout Ministries, will assist in ensuring that an enabling environment to support staff within their ministries is formed. In addition, it will ensure that the individual capacity is maintained whilst organisational capacity is also developed.

2. Build on the important work undertaken in this ToR by moving towards village level adaptation assessments

The work conducted through this ToR has focussed on national level adaptation, with an emphasis on the Government's role in adapting to climate change. However, there is also the need to move beyond the 'top down' approach to adaptation to incorporate 'bottom-up' approaches. The skills to undertake 'bottom-up' risk and adaptation assessments have been outlined to the Working Group members. However, practical implementation of these skills will be required to build confidence. Therefore, it is recommended that capacity building be undertaken in 'bottom up' approaches to risk assessment and adaptation planning.

3. Broaden understanding of advanced concepts to support adaptation (i.e. thresholds for adaptation action)

The ToR focussed on ensuring that the robust tools to inform adaptation decision-making were in place, and actively used, prior to the introduction of advanced concepts to support the implementation of adaptation measures. However, while this was appropriate for the first phase of adaptation training, it is important to ensure that as confidence is developed in applying the initial tools that additional concepts that can be used to enhance decision-making are introduced to Working Group members. For example, the concept of 'thresholds-for-change' was introduced to the Working Group members to provide a broad awareness of the further tools to support risk assessment and adaptation planning, depending upon the information available and the decisions to be supported by the assessment. However, while this was introduced as a concept, the skills to incorporate thresholds within adaptation planning were not provided. It is recommended that once skills in applying the initial tools are gained and actively applied to support decision making that additional capacity building is undertaken to ensure these skills are maintained and enhanced.

7. REFERENCES

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Ramsay, D (2009) *Coastal Calculator Operational Handbook*, Kiribati Adaptation Project Phase II: Climate Information for Risk Management, National Institute of Water & Atmospheric Research Ltd

UKCIP (2006) *Climate Adaptation: Risk, uncertainty and decision making*, UKCIP Technical Report, Willows, R. & Connell, R [Eds], UK Climate Impacts Programme.

Kay, R. (2008) *Development of an Integrated Climate Change Adaptation Risk Diagnosis and Planning Process: Final Report*. Report prepared for the KAP Project, Phase II. Coastal Zone Management Pty Ltd, Perth

Appendix 1: Data Modifications Completed

The steps undertaken to assign a 'use' attribute to each of the buildings within South Tarawa are presented below. The original data files used to create the attributed building data file are shown in *ITALICS*. The new files created are shown in **BOLD**. These original files were obtained from the Lands Department, MPWU. The new files have been supplied to Working Group Participants and Workshop Attendees.

Step 1: Joined the *House_owners 2005* region and *Tar_topo_bld* to create shapefile called **Buildings new**

Step 2: Clipped **Buildings New** by *tar_landuse_region* to assign a landuse type to each building. The output was called **Buildings by Landuse**

Step 3: Then joined **Buildings by Landuse** to **Buildings New** to ensure the attribute table contained all information available. The output was called **Buildings Final**.

It is important to note that the final shapefile **Buildings Final** did not contain all buildings, because if there was an area that did not have an assigned landuse, it was not included in the 'Buildings by Landuse' file. This issue was addressed in later steps - see Step 5 below.

Step 4: Created an extra column in the **Buildings Final** shapefile called BuildingsCE. This contained an overall allocation of a building as either:

a. Private housing
b. Government housing
c. Commercial facility
d. Government service #1: health, education, police facilities
e. Government service #2: water, sewerage, electricity
f. Government service #3: major transport – airports, ports
g. Government Service #4: Secondary transport, roads, parking
h. Government Service #5: Government building, not housing: for example agriculture office, diplomatic buildings, prison, desalination plant.

In assigning a building to one of these categories, a number of information sources were used, including:

1. The landuse type that the building was located on
2. The description of the building
3. The owner

This information was presented within the attribute table of the Buildings Final shapefile. A sample of the decisions made when allocating a category to each building is shown in the table below.

Step 5: The **Buildings Final** shapefile was merged with the *House_owners 2005* file, to ensure that it incorporated all buildings. However, there were a significant number of additional buildings included in this file – approximately 1500 – so they were not all attributed as per the coding above. Rather, they were left blank. These buildings can be 'clicked' on to gather information such as 'home owner' if required. The shapefile containing all buildings is called **Buildings FINAL FINAL kml**. However, the **Buildings FINAL kml**, which does not have the additional buildings within the file, is a smaller file to view and may be more appropriate for application in the risk assessment.

Landuse	Description	Owner	Final Categorization
Civic use		Private	Cultural facility
Commercial Use		Private	Commercial Facility

Not designated		Private	
Not designated		blank	Not designated
Government		Private	Government Service 5
Low/high density housing	bet123a		Government housing
Blank		Private	Private housing
Commercial		Private	Commercial facility
Blank	Name	Private	Private housing

Appendix 2: I-Kiribati Scenarios and Timeframes

The three future climate change scenarios and three timeframes to be used for routine climate change assessments in Kiribati are presented below.

Table 6: I-Kiribati climate change scenarios

Scenario Name (English)	Description
Low: IPCC Scenario B2	Low range of model output (5%) + no scaled-up ice sheet component by 2090
Intermediate: IPCC Scenario A2	Mid range of model output (50%) + 10 cm scaled up ice sheet component by 2090
High: IPCC Scenario A1F1	Upper range of model output (95%) + 20 cm scaled up ice sheet component by 2090.

Table 2: I-Kiribati timeframes for general climate change assessment.

Timeframe Name (English)	Timeframe Name (I-Kiribati)	Timeframe
Grand Children	Te tibu	2012 - 2036
Great-grand children	Tibu-toru	2036 - 2060
Great-great-grandchildren	Tibu-mwamwanu	2060 - 2084

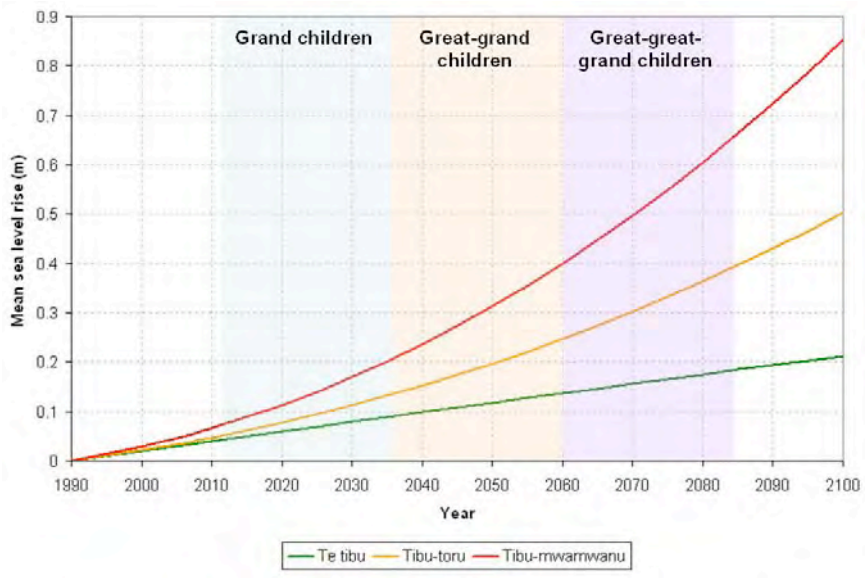

Figure 1: Relative mean sea-level rise for the three I-Kiribati climate change scenarios (source: Ramsay et al, 2009)

Appendix 3: Workshop Participants

Workshop 1: Risk Assessment

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Appendix 4: Working Group Members

Risk Assessment Working Group

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Mr Tenea Atera		BTC rep	Betio Town Council
Ms Rotika Tiaon		TUC rep	Tarawa Urban Council
Mr Itienang Timona		Water Engineering Manager	PUB
Mr Bauro Ukitoori		Development Enforcement Officer	Land planning Unit, MELAD
Ms Bweneata. Kaoti		Assistant pollution control officer	ECD, MELAD
Mr. Mike Foon		Climate change officer	ECD, MELAD
Ms Smond		Project Assistant	ECD, MELAD

Adaptation Working Group

Member	Responsibility	Designation	Organisation
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Ms Rotika Tiaon		TUC rep	Tarawa Urban Council
Mr Bauro Ukitoori		Development Enforcement Officer	Land planning Unit, MELAD
Ms Bweneata. Kaoti		Assistant pollution control officer	ECD, MELAD
Ms Beraina. Teirane		Economist	MFED

Appendix 5: Village Level Risk Assessment Results

Table 7: Village Level Risk Assessment Results

Compartment No.	Indicators	Risks	Consequence	Likelihood	Risk	Overall Compartment Risk Rating
1: Betio	Private housing (approx:3-5%)	Increased cost for maintenance and repair, replacement leading to increased financial stress on householders	Very bad	Almost certain	Extreme	Medium
		Increased pressure on other areas due to migration	Very bad	Almost certain	Extreme	
	Government service #1 (education)	Increased need for government spending creating financial stress	Bad	Likely	Low	
		Disruption of school programme	Bad	Likely	Medium	
	Government service #2 Water, sewerage, electricity, phone	Increase repair and maintenance costs for government	Not bad	Possible	Low	
		Overload capacity of the sewerage collection system - maintenance and repair cost	Plenty bad	Likely	High	
		Disruption of power supply	Bad	Unlikely	Low	
	Government service #3 (Kiribati Port Authority)	Severe economic loss to the government	Very bad	Almost certain	Extreme	
		Increase costs for maintenance and repair	Very bad	Almost certain	Extreme	
		Damage to imported foods	Very bad	Almost certain	High	
		Decline in government revenue	Very bad	Likely	High	
		Loss of employment	Bad	Possible	Medium	
	Commercial buildings (King's holdings Rental)	Decline in Government Revenue (license, tax, employment and custom)	Bad	Unlikely	Low	
		Increased in repair and maintenance costs	Bad	Unlikely	Low	
	Government service #4 (roads)	Increase costs of maintenance and repair	Bad	Likely	Medium	
		Inaccessible roads	Bad	Possible	Medium	
	Cultural facilities (sport field)	Loss of cultural practices/identify	Not bad	Unlikely	Low	

Compartment No.	Indicators	Risks	Consequence	Likelihood	Risk	Overall Compartment Risk Rating
	Ground water	Reduction fresh water supply/contamination in fresh water	Bad	Possible	medium	
	Vegetation	Loss of local food/medicines	Bad	Possible	Medium	
2: Bairiki	Government Service #1 (Prison and education)	Reduce government service	Bad	Almost certain	Medium	Low
		Increase cost for maintenance and repair	Bad	Almost certain	Medium	
	Private housing	Increase costs for maintenance for repair	Very bad	Almost certain	Extreme	
		Increase pressure on other areas due to migration	Plenty bad	Almost certain	High	
	Government housing	Increase costs for maintenance and repair	Very bad	Possible	High	
		Increase pressure on other areas due to migration	Very bad	Possible	High	
	Government service #2: Water, sewerage, electricity, phone	Disruption of power supply Water, sewerage, electricity, phone	Not bad	Possible	Low	
		Increase repair and maintenance costs for government	Not bad	Possible	Low	
			Very bad	Almost certain	Extreme	
	Cultural facility: Buildings located in civic use areas, churches and maneabas	Loss of cultural practices/identity	Bad	Likely	Medium	
		Increased financial stress on communities and church groups to maintain and repair	Bad	Likely	Medium	
	Government Service #3 (Bairiki wharf)	Increase costs for maintenance for repair	Very bad	Almost certain	Extreme	
	Government Service #5 (office)	Reduce government service (govt vehicles & office)	Bad	Possible	Medium	
		Cause water contamination from vehicles (PVU)	Very bad	Possible	High	
		Increase costs for maintenance for repair	Bad	Possible	Medium	
	Ground water	Reduction fresh water supply/contamination in fresh water	Not bad	Possible	Low	
	Vegetation	Loss of local food/medicines/coastal protection	Bad	Likely	Medium	

Compartment No.	Indicators	Risks	Consequence	Likelihood	Risk	Overall Compartment Risk Rating
3: Nanikaai	Private housing	Increase repair and maintenance costs for household	Not bad	Possible	Low	Low
		Increased pressure on other areas due to migration	Not bad	Possible	Low	
	Government housing	increase costs for maintenance and repair	Not bad	Unlikely	Low	
		increase pressure on other areas due to migration	Not bad	Unlikely	Low	
	Cultural facility: Buildings located in civic use areas, churches and maneabas	Loss of cultural practices/identify	Bad	Possible	Medium	
		Increased financial stress on communities and church groups to maintain and repair	Bad	Possible	Medium	
	Land fill	Contamination to marine lives	Very bad	Likely	High	
		Increase cost for maintenance and repair	Very bad	Likely	High	
		Increase littering/pollution in other areas	Very bad	Almost certain	Extreme	
4: Teaoraereke	Government service #1 (Saint Louis)	Increased need for government/church communities spending creating financial stress	Very bad	Almost certain	Extreme	Medium
		Disruption of school programme	Very bad	Likely	High	
	Cultural facility: Buildings located in civic use areas, and maneabas, cemetery	Loss of cultural practices/identify (field, mormon church, Catholic maneaba)	Not bad	Likely	Low	
		Increased financial stress on communities and church groups to maintain and repair	Not bad	Likely	Low	
		Contamination of groundwater from Cemetery	Very bad	Almost certain	Extreme	
	Government service #4 (roads)	Increase costs of maintenance and repair	Bad	Almost certain	Medium	
	Government service #2 Water, sewerage, electricity, phone	Disruption of power supply Water, sewerage, electricity, phone	Bad	Possible	Medium	
		Increase repair and maintenance costs for government	Bad	Possible	Medium	
	Private housing (30 - 40%)	Increase repair and maintenance costs for household	Very bad	Likely	High	

Compartment No.	Indicators	Risks	Consequence	Likelihood	Risk	Overall Compartment Risk Rating
		Increased pressure on other areas due to migration	Very bad	Likely	High	
	Commercial buildings (Private owned - Fairprice)	Decline in Government Revenue (License, tax, custom,)	Bad	Likely	Medium	
		increased in repair and maintenance costs	Bad	Likely	Medium	
	Ground water	Increase water contamination/salinity/reduce freshwater supply	Very bad	Almost certain	Extreme	
	Vegetation	loss in local food/medicines/coastal protection	Plenty bad	Almost certain	High	
5: Antenon	Private Housing (>50%)	increase repair and maintenance costs	Very bad	Almost certain	Extreme	Extreme
		increase pressure on other areas due to migration	Very bad	Almost certain	Extreme	
	Commercial facility (Tarawa motors desalination plant)	Decline in Government Revenue (License, tax, custom,)	Not bad	possible	Low	
		Reduce production - Mineral water	Not bad	Possible	Low	
	Government service #2: Water, electricity, phone	Disruption of power supply, phone, water pipes	Bad	Almost certain	Medium	
		Increase repair and maintenance costs	Bad	Almost certain	Medium	
		Increase in water salinity	Very bad	Almost certain	Extreme	
	Ground water	Increase water contamination	Very bad	Almost certain	Extreme	
	Government service #4 (roads)	Increase repair and maintenance costs	Plenty bad	Almost certain	High	
		Inaccessible roads	Plenty bad	Almost certain	High	
	Vegetation	loss of food/medicine/coastal protection	Plenty bad	Likely	High	
6: Antebuka	Private Housing (>50%)	increase repair and maintenance costs	Very bad	Almost certain	Extreme	Extreme
		increase pressure on other areas due to migration.	Plenty bad	Almost certain	High	
	Government service #1(Primary school)	Increased need for government spending creating financial stress	Very bad	Almost certain	Extreme	
		Disruption of school programme	Plenty bad	Almost certain	High	
	Cultural facility: SDA	Loss of cultural practices/identify	Plenty bad	Almost certain	High	

Compartment No.	Indicators	Risks	Consequence	Likelihood	Risk	Overall Compartment Risk Rating
	Mwaneaba/KPC mwaneaba, School mwaneaba	Increased financial stress on communities and church groups to maintain and repair	Plenty Bad	Almost Certain	High	
	Government service #2: Water, electricity, phone	Disruption of power supply, phone, water pipes	Bad	Almost Certain	Medium	
		Increase repair and maintenance costs	Bad	Almost Certain	Medium	
	Ground water	Increase in water salinity	Very Bad	Almost Certain	Extreme	
		Increase water contamination	Very Bad	Almost Certain	Extreme	
	Vegetation	loss of food/medicine/coastal protection	Very Bad	Almost Certain	Extreme	
	Government service #4 (roads)	Increase repair and maintenance costs	Bad	Likely	Medium	
		inaccessible roads	Bad	Likely	Medium	
7: Banraeaba	Private Housing	increase repair and maintenance costs	Not Bad	Possible	Low	Low
		increase pressure on other areas due to migration.	Not Bad	Possible	Low	
	Government service #2: Water, electricity, phone	Distruption of powersupply, phone, water pipes	Not Bad	Unlikely	Low	
		Increase repair and maintenance costs	Not Bad	Unlikely	Low	
	Ground water	Increase in water salinity	Not Bad	Possible	Low	
		Increase water contamination	Not Bad	Unlikely	Low	
	Vegetation	loss of food/medicine/coastal protection	Not Bad	Unlikely	Low	
8: Ambo	Commercial facility (Aqua Farm, TKL, KOES, Bus service, FM89, Lagoon Club)	Decline in Government Revenue (License, tax, custom)	Plenty Bad	Likely	High	Medium
	Private Housing	increase repair and maintenance costs	Plenty Bad	Almost Certain	High	
		increase pressure on other areas due to migration.	Plenty Bad	Almost Certain	High	
	Government service #2: Water, electricity, phone, Water transmission pipe (causeway)	Disruption of power supply, phone, water pipes	Plenty Bad	Almost Certain	High	
		Increase repair and maintenance costs	Plenty Bad	Almost Certain	High	
	Government service #4 (roads)	Increase repair and maintenance costs	Bad	Likely	Medium	
		inaccessible roads	Bad	Likely	Medium	

Compartment No.	Indicators	Risks	Consequence	Likelihood	Risk	Overall Compartment Risk Rating
	Ground water	Increase in water salinity	Very Bad	Almost Certain	Extreme	
		Increase water contamination	Plenty Bad	Almost Certain	High	
	Vegetation	loss of food/medicine/coastal protection	Plenty Bad	Almost Certain	High	
	Parliament House	Increase repair and maintenance costs	Bad	Possible	Medium	
	Cultural facility (Lagoon Club sport field)	Loss of cultural practices/identify	Not Bad	possible	Low	
9: Taborio	Private housing	increase repair and maintenance costs	Not Bad	Possible	Low	Low
		increase pressure on other areas due to migration.	Not Bad	Possible	Low	
	Government service #4 (roads)	Increase repair and maintenance costs	Bad	Likely	Medium	
		Road accident/damage to vehicles	Plenty Bad	Likely	High	
	Commercial facility (Timau)	Increase repair and maintenance costs	Very Bad	Almost Certain	Extreme	
	Ground water	Increase in water salinity/water contamination	Not bad	Possible	Low	
	Vegetation	loss of food/medicine/coastal protection	Bad	Likely	medium	
10: Tangintebu	Private Housing (13houses out of 90+)	increase repair and maintenance costs	Bad	Likely	Medium	Medium
		increase pressure on other areas due to migration.	Bad	Likely	Medium	
	Government service 2 telecom/waterpipe)	Increase repair and maintenance costs	Plenty Bad	Possible	medium	
	Government service 1 (education - WGMS)	Increase repair and maintenance costs (Church community and Government)	Plenty Bad	Possible	Medium	
		disruption of school programme	Plenty Bad	Possible	Medium	
	Vegetation and food crops	loss of local food/medicines/coastal protection	Plenty Bad	Likely	High	
	Ground water	Increase salinity	Plenty Bad	Likely	High	
		Groundwater contamination	Plenty Bad	Likely	High	
	Government service #4 (roads)	Increase repair and maintenance costs	Bad	Likely	Medium	
11: Eita	Private Housing	increase repair and maintenance costs	Very Bad	Almost Certain	Extreme	Extreme

Compartment No.	Indicators	Risks	Consequence	Likelihood	Risk	Overall Compartment Risk Rating
		increase pressure on other areas due to migration.	Very Bad	Almost Certain	Extreme	
	Government service 2 telecom/waterpipe)	Increase repair and maintenance costs	Bad	Possible	Medium	
	Vegetation and food crops	loss of local food/medicines/coastal protection	Plenty Bad	Likely	High	
	Cultural facilities (KPC & Assembly of God)	Increase repair and maintenance costs	Very Bad	Almost certain	Extreme	
		increase pressure on other areas due to relocation of maneaba & other church facilities	Very Bad	Almost Certain	Extreme	
	Ground water	Increase salinity/reduction of freshwater supply	Plenty Bad	Likely	High	
		Groundwater contamination	Plenty Bad	Likely	High	
	Government service #4 (roads)	Increase repair and maintenance costs	Bad	Possible	Medium	
		Inaccessible secondary roads	Bad	Possible	Medium	
	Mangroves	Increased coastal erosion	Very Bad	Likely	High	
		Loss of biodiversity	Very Bad	Likely	High	
		Loss of habitat for crabs/marine species - reduction in food availability	Very Bad	Likely	High	
Abarao	Private Housing	increase repair and maintenance costs	Not Bad	Possible	Low	Low
		increase pressure on other areas due to migration.	Not Bad	Possible	Low	
	Government service 2 waterpipe)	Increase repair and maintenance costs	Not Bad	Possible	Low	
	Vegetation and food crops	loss of local food/medicines/coastal protection	Bad	Possible	Medium	
	Ground water	Increase salinity/reduction of freshwater supply	Not Bad	Possible	Low	
		Groundwater contamination	Not Bad	Possible	Low	
Bwangan tebure	Private Housing	Increase repair and maintenance costs	Plenty Bad	Likely	High	High
		Increase pressure on other areas due to migration.	Plenty Bad	Likely	High	
	Government service 2 (waterpipe, telecom)	Increase repair and maintenance costs	Not Bad	Unlikely	Low	

Compartment No.	Indicators	Risks	Consequence	Likelihood	Risk	Overall Compartment Risk Rating
	Vegetation and food crops/medicine	Loss of local food/medicines/coastal protection	Plenty Bad	Likely	High	
	Cultural facility (Rurete Mwaneaba)	Increase repair and maintenance costs for church Community	Bad	Possible	Medium	
		Increase pressure on other areas due to relocation of maneaba & other church facilities	Bad	Possible	Medium	
	Government service 1 (education - TUC1)	Increase repair and maintenance	Bad	Possible	Medium	
		Disruption of school programme	Not Bad	Possible	Low	
	Government service 4 (secondary road)	Increase repair and maintenance costs	Not Bad	Possible	Low	
		Inaccessible secondary roads	Not Bad	Possible	Low	
	Ground water	Increase salinity/reduction of freshwater supply	Very Bad	Likely	High	
		increase contamination	Very Bad	Likely	High	
12: Bikenibeu	Private housing	Increased cost for maintenance and repair, replacement leading to increased financial stress on householders	Very Bad	Likely	High	Extreme
		Increased pressure on other areas due to migration	Very Bad	Likely	High	
	Cultural facilities (sportfield, KPC church and Mwaneaba, RC church and mwaneaba,	Loss of cultural practices/identify	Very Bad	Likely	High	
		Increased financial stress on communities and church groups to maintain and repair	Very Bad	Likely	High	
	Govt Service 5 (KHC Office, Education CDRC office, Clinic, AMAK office and Mwaneaba, Museum,), powerhouse,	Increased need for government spending creating financial stress	Very Bad	Likely	High	
		Reduced government services (e.g. health and education)	Very Bad	Likely	High	
	Roads (secondary roads)	Inaccessible secondary roads	Plenty Bad	Likely	High	
		Increase costs for repair and maintenance	Plenty Bad	Likely	High	
	Ground Water	Increase salinity/reduction of freshwater supply	Very Bad	Almost Certain	Extreme	
		Increase contamination	Very Bad	Almost Certain	Extreme	

Compartment No.	Indicators	Risks	Consequence	Likelihood	Risk	Overall Compartment Risk Rating
	Vegetation and food crops (agricultural nursery garden)	loss of local food/medicines/coastal protection	Very Bad	Almost Certain	Extreme	
	Government service #1 (Bikenibeu west Primary School, Sacred Heart High School)	Increase cost for maintenance and repair	Very Bad	Likely	High	
		Disruption of school programme	Very Bad	Likely	High	
	Commercial facility (Inanoi CS, Bank, TUC market, MOEL)	Increase cost for maintenance and repair	Very Bad	Likely	Medium	
		Decline in government revenue (license, tax, customs)	Plenty Bad	likely	High	
		Increase unemployment	Bad	Possible	Medium	
	Government Service #2 (Waterpipe, telecom, electricity and sewerage)	Increase cost for maintenance and repair	Plenty Bad	Likely	High	
	Government Housing	Increase costs for maintenance and repair	Very Bad	Likely	High	
		Increase pressure on other areas due to migration	Very Bad	Likely	High	
	Landfill	Increase contamination to marine lives	Very Bad	Likely	High	
		Increase costs for maintenance and repair	Very Bad	Likely	High	
13: Nawerewere	Private Housing	Increased cost for maintenance and repair, replacement leading to increased financial stress on householders	Bad	Possible	Medium	Medium
		Increased pressure on other areas due to migration	Bad	Possible	Medium	
	Mangroves	Increased coastal erosion	Plenty Bad	Likely	High	
		Loss of biodiversity	Plenty Bad	Likely	High	
		Loss of habitat for crabs/marine species - reduction in food availability	Plenty Bad	Likely	High	
	Government service 1 (preschool)	Increase cost maintenance and repair (church communities)	Bad	Likely	Medium	
		Disruption of school programme	Bad	Likely	Medium	

Compartment No.	Indicators	Risks	Consequence	Likelihood	Risk	Overall Compartment Risk Rating
	Vegetation	Loss of local food/medicines/coastal protection	Plenty Bad	Likely	High	
	Cultural Facility (KPC maneaba)	Increase cost for maintenance and repair	Plenty Bad	Likely	High	
		Loss of cultural practices/identify	Bad	Possible	Medium	
		Increase pressure on other areas due to relocation of maneaba & other church facilities	Bad	unlikely	Low	
	Ground water	Contamination	Bad	Possible	Medium	
		Increase salinity/reduction of freshwater supply	Bad	Possible	Medium	
	Government service 4 (secondary road)	Inaccessible secondary roads	Bad	Likely	Medium	
		Increase cost for maintenance and repair	Bad	possible	Medium	
14: Temaiku	Private housing	Increased cost for maintenance and repair, replacement leading to increased financial stress on householders	Plenty Bad	Likely	High	High
		Increased pressure on other areas due to migration	Plenty Bad	Likely	High	
	Roads (secondary roads)	Increase costs for maintenance and repair	Bad	Likely	Medium	
		Inaccessible secondary roads	Bad	Likely	Medium	
	Government service #2: Waterpipe, telecom, electricity	Increased repair and maintenance costs for government	Bad	Likely	Medium	
	Cultural facility: KPC church and mwaneaba, RC mwaneaba,	Loss of cultural practices/identify	Bad	Likely	Medium	
		Increased financial stress on communities and church groups to maintain and repair	Bad	Likely	Medium	
	Vegetation	Loss of food/medicine/coastal protection	Very Bad	Likely	High	
	Ground water	Contamination	Plenty Bad	Likely	High	
		Increase salinity/reduction of freshwater supply	Very Bad	Almost Certain	Extreme	
	Commercial facility (Taiwan technical mission, Ecofarm)	Increase cost for maintenance and repair	Bad	Likely	Medium	
		Decline in Government Revenue (License, tax, custom)	Bad	Likely	Medium	

Appendix 6: Concept Note

KIRIBATI AND THE ROAD TO COPENHAGEN

Overview

This document addresses the possibility of the GoK applying for and presenting a Side Event at the COP Copenhagen in December 2009. If agreed the GoK must register their interest and submit the proposal to the UNFCCC, on 1 September 2009. It is important to note that the submission 'window' is open for one week only from 1-4 September. There are no exceptions allowed. This matter therefore requires immediate action.

7.1. Event Concept Note

7.1.1. Background

The 2009 Conference of Parties (COP 15) to the United Nations Framework Convention on Climate Change (UNFCCC) will be one of world's most important meetings ever held on climate change. The meeting, to be held in Copenhagen this December, is the culmination of the 'Bali Road Map' negotiation process to set the post-Kyoto (after 2012) international legal climate change framework. It is the key event to influence the climate change negotiations to put the case for reductions in greenhouse gas emissions and so reduce the future impacts of sea-level rise and climate change on vulnerable and low-lying nations such as Kiribati.

During the two-week long UNFCCC COP, selected participants have the opportunity to showcase recent research on climate change issues at "Side Events". These Side Events are essentially short workshops and are held along-side the negotiating sessions. They last either 1.5 or 2.0 hours and have become an integral part of the COP, particularly as COPs has grown significantly in recent years, with over 30,000 delegates expected in Copenhagen.

The GoK recognises the importance of the event for Kiribati and with support from the internationally funded Kiribati Adaptation Project Phase II (KAP II) there is the practical possibility to pursue this important opportunity.
This Event Concept Note outlines the purpose of the Kiribati side event and presents a draft agenda for the session.
Finally, the proposed form to be submitted in application to the side event is presented.

7.1.2. Guiding Principles of the Side Event

- Demonstrating the vulnerability of Kiribati to climate change. This would include presenting the outcomes from extensive programmes undertaken to date in the country on assessing vulnerability to climate change.
- Contributing to spread the message across the world of the need to reduce emissions. While there is no guarantee that the side event will contribute to developed and developing countries reducing their emissions (as proposed by AOSIS[9]), presenting information on the vulnerability of Kiribati to climate change will make a vital contribution to the many voices urging for reductions.
- Stressing those emission reductions will help avoid the need for irreversible, long-term drastic adaptation options, such as the need for Kiribati people to have to be relocated (because of a

[9] The Alliance of Small Island States (AOSIS) is a coalition of small island countries that share similar development challenges and concerns about the environment, especially their vulnerability to the adverse effects of global climate change. It functions primarily as an ad hoc lobby and negotiating voice for Small Island Developing States (SIDS) within the United Nations system.

failure to mitigate climate change, or because of insufficient assistance now and in the future to adapt effectively in the short, medium and long terms).

- Recognise the commitment of the Government of Kiribati to emission reductions, even though our emissions are negligible.
- Recognising that the Kiribati way of life is important to all I-Kiribati, and the preservation of national identity and cultural heritage as I-Kiribati is closely and intrinsically linked to the environment.

7.1.3. Aims of the Kiribati Side Event

The aims of the proposed Kiribati side event are to:

- Highlight the vulnerability of Kiribati to climate change.
- Influence large emitters to agree to significant emissions' cuts in the Copenhagen negotiations, as are proposed by AOSIS and supported by Kiribati.
- Appeal to donors to support Kiribati with its adaptation actions.
- Showcase recent achievements in climate change adaptation programs in Kiribati through the presentation of recent case studies. For example, the risk assessments that highlight the differential impacts GHG reductions would have on the future of South Tarawa.
- Demonstrate the depth and extent of programmes undertaken in Kiribati, either as country-specific activities or as part of regional programmes. This includes work by:
    a. National Adaptation Programme of Action (NAPA)
    b. Initial National Communication to the UNFCCC
    c. Second National Communication to the UNFCCC
    d. Kiribati Adaptation Project (KAP)
    e. The numerous activities undertaken by different sectors in an effort to adapt and/or mitigate (e.g. aggregate mining project, National Climate Change Adaptation Policy, National Energy Plan, National Water Resource Policy)

  And active involvement in regional initiatives such as:

    f. Pacific Islands Climate Predictions Project (PICPP)
    g. Various Disaster Risk Reduction, coastal erosion studies, natural resource and environmental projects with our regional partners including SOPAC, SPREP and the SPC.
    h. Various Greenhouse Gas Emission reduction projects, such as the Pacific Islands Greenhouse Gas Abatement through Renewable Energy Project (PIGGAREP)
- Stress the continued strength of Kiribati traditional and cultural links to the environment.
- Demonstrate the Kiribati commitment to emission reductions to illustrate that the country is also committed to global efforts in reducing greenhouse gas emissions.
- Continue to maintain the high profile of the Government of Kiribati in international climate change negotiations.

7.1.4. Side Event Agenda

In registering the side event with the UNFCCC, the Kiribati preference is for a lunchtime session, between 1 and 3pm.

Proposed Event Agenda

Time	Activity	Notes
5 mins	Technical Head of Kiribati Delegation welcome	Assume Secretary level
5 mins	Dance to portray the cultural heritage of Kiribati and what could be lost to the world	Message from Kiribati to the world – from the Youth of Kiribati
10 mins	Presentation of video from Kiribati	To be commissioned for this event. The video will also be available for use in GoK communication events throughout 2009
10 mins	Technical presentation(s) – including meaningful scientific case studies	MELAD/OB/KAP
20 mins	The President's perspective	Option is provided to the President to speak and then sit on stage separately from the panel. If he is not available, then a Minister may present on his behalf.
Q&A Panel		
40 mins	Technical Head of Kiribati Delegation introduces the panel members Q&A session with panel members	Potential panel members: • Senior official(s) of Government of Kiribati • Representatives of Kiribati NGOs (if attending) • Representative of donor partners (e.g. World Bank, AusAID, NZAID) • Representative of technical consultants involved in CCA in Kiribati
20 mins	Buffet lunch (Allow for the panel to go overtime)	Sample lunch served including traditional Kiribati foods

7.1.5. Event Panel Membership

- Suggest four panel members at a maximum.
- Panel membership should be based on demonstrated strong support of climate change programmes in Kiribati.
- Assume that panel members from GoK are senior level representatives from different agencies than the Technical Head, so that all aspects of Climate Change Adaptation, Disaster Risk Reduction and mitigation across government are showcased.

7.1.6. Event Target Audience

- Primary target audience: large GHG emitters, to demonstrate the potential damage to Kiribati that climate change and higher seas will bring.
- Secondary target audience: donors who will need to support Kiribati with its adaptation actions

7.1.7. Special Invitations to the event

- Those that have been supporting Kiribati (such as the World Bank and KAP co-financers, Australia and New Zealand) are invited to attend the session.
- Potential invitation to other atoll leaders (Tuvalu, Marshalls and Maldives).
- Members of the Kiribati negotiation group (e.g. AOSIS, Pacific)

7.1.8. Kiribati Negotiating Position at the COP

The negotiation position of Kiribati within its negotiation group (i.e. AOSIS, Pacific neighbours) needs to be carefully considered. Regional groups need to be made aware of the event and its messages to ensure that the group's position is respected and supported.

7.1.9. On Approval of the Side Event

If the side event is approved by the UNFCCC Secretariat, MELAD as the Kiribati UNFCCC focal point will be informed a minimum of 4 weeks before the start of the COP. This gives a short window of time to prepare for the Side Event, including the production of a custom DVD, promotional materials, press conferences, confirmation of panel speakers and so on.

It is proposed that KAP II will support the preparation of the Side Event materials and make available one of its consultants to attend the COP as a member of the Kiribati delegation. The consultant may manage logistics and assist with, or make, a presentation, if required.

7.1.10. Submission Form

The UNFCCC Secretariat has very strict requirements for the Side Event Submission, including a strict word limit of 300 characters for the submission text. The proposed components of the submission are provided below:

Required Field	Proposed Response
Submitting Organisation	Government of Kiribati
UNFCCC Status	Party
Name, email and mobile number of contact person on site	Dr. Robert Kay Robert.Kay@coastalmanagement.com +61 400 242 791
Title and theme (max. 100/300 characters INCLUDING SPACES, any characters exceeding this limitation will automatically be cut off)	**Kiribati: Our road to Copenhagen.** We are first in line to face irreversible climate change impacts. Hear how our islands will change in our children's lifetimes and our plans to adapt. Learn from this practical experience. Join us and our partners in calling for a meaningful global response.
Preferred date and time (lunch/evening slot; 1st week/2ndweek)	Lunchtime slot preferred 1st week
Anticipated attendance	100-150 people

Appendix 7: Briefing for Ministers and Stakeholders

Kiribati and the Road to Copenhagen.

Background

The 2009 Conference of Parties (COP 15) to the United Nations Framework Convention on Climate Change (UNFCCC) will be one of the most important meetings ever held on climate change. The meeting, to be held in Copenhagen, is the culmination of the 'Bali Road Map' negotiation process to set the post-Kyoto (after 2012) international legal climate change framework. It is the key event to influence the climate change negotiations to put the case for reductions in greenhouse gas emissions and so reduce the future impacts of sea-level rise and climate change on vulnerable and low-lying nations such as Kiribati.

During the two week-long UNFCCC COP, selected participants have the opportunity to showcase recent research on climate change issues at "side events". These side events are essentially short workshops, lasting 1.5 hours and have become an integral part of the annual COP, particularly as the scale of the annual COP has increased significantly in recent years – with over 30,000 delegates expected in Copenhagen.

In addition to the opportunity to showcase research, side events have the vital role of helping to influence events within the COP negotiating sessions. Well-designed side events attract country negotiators and significant media attention, which in turn can help influence the negotiations.

In light of this, the opportunity to hold a side event at the upcoming COP 15 to showcase the achievements in Kiribati would be most valuable for the people of Kiribati and the international community. It would be a significant opportunity for KAP to directly support the UNFCCC process with a united and coordinated effort in country.

This briefing note outlines the purpose of the side event, what support is needed from key partners and stakeholders involved in climate change work in Kiribati, and what the process of developing a submission for the event will involve.

The World Bank recognises the importance of the event and has provided funding through the Kiribati Adaptation Project Phase (KAP) to help the Government of Kiribati (GoK) prepare a submission to hold a side event in Copenhagen.

Purpose of event

The aim of the proposed Kiribati COP 15 side event is to:

- Showcase the achievements of GoK and KAP initiatives in climate change as a way of sharing knowledge, experiences and lessons learned with other countries.

  Enable presentation of the outcomes from two recent KAP projects:

  i. Mainstreaming of an Integrated Climate Change Adaptation Based Risk Diagnosis and Response Process into the Government of Kiribati.
  j. Development of an Integrated Climate Change Adaptation Based Risk Diagnosis and Response Process.
- Recognise the importance of ongoing work in Kiribati led by MELAD through the Second National Communication to the UNFCCC in the face of the critical vulnerabilities of the island to climate change and sea-level rise.

- Demonstrate through presentation of the results above, a powerful case study the differential impacts that GHG reductions would have on the future of South Tarawa, in this way, acting to pressure the large Greenhouse Gas (GHG) emitters to cut emissions in the post-Kyoto framework negotiated in Copenhagen.
- Continue to maintain the high profile of the Government of Kiribati in international climate change negotiations.

Additional benefits of the side event

An important additional benefit of the side event will be to strengthen the relationship between GoK and KAP, encouraging a high degree of coordination and cooperation between agencies in the lead up to the submission and the event itself.

It is envisaged that the success of such an event will enable the GoK to highlight their achievements, both through the GoK activities and the support provided to KAP. Given that MELAD is the UNFCCC Focal Point and is responsible for taking the lead in all matters relating to the Convention, this will be particularly important.

Proposed approach

Organisation of the side event submission provides an opportunity to demonstrate interagency collaboration in working together to address the impacts of climate change.

In developing a Concept Note of the side event, key partners and stakeholders will be consulted in an open and two-way dialogue. To enable this to occur, a member of the Project Team, Dr. Robert Kay, will be available from Tuesday 11 August 2009 to discuss potential ideas and the scope of the side event with key stakeholders.

As a starting point, meeting with the NASC Working Committee (WC) dedicated to overseeing the preparation of the side event would be most valuable. It would be ideal if this meeting could be arranged for Wednesday 12 August 2009. The WC comprises members from OB, MELAD and PMU.

Consultation with key KAP stakeholders, namely World Bank, GoK, AusAID, and NZAID, is also highly desirable. Suggestions from the NASC WC as to the best people to consult within these agencies would be much appreciated.

Input from the GoK will also be sought during the consultation phase.

Key issues for discussion

Some of the key issues on which input is requested during the consultation phase are:

- Scope and agenda of the side event:
    - What is the key message, as linked with the GoK negotiating position, going into Copenhagen?
    - Format of the side event, for example, who will present and in what order?

      The Project Team is open to all ideas with regard to the organisation of the side event.

- What are the key communication objectives of the side event? These will need to align with the GoK objectives.
- Attendance at Copenhagen:
    - Who is going in the Kiribati delegation and what is their role?
    - Roles in regional organisations - what, if any, regional organisations need input into the side event, for example, Pacific Calling Partnership, South Pacific Regional Environment Programme, Association of Small Island States?
- Will there be a community outreach component (or campaign) of the side event? If so, what will this involve and who will be responsible for preparing marketing and promotional materials, including online networking tools?

Following the consultation process, a draft Concept Note will be prepared for the side event, along with a Cabinet Briefing, for approval by key stakeholders.

Following approval, the Project Team will develop the final submission to the UNFCCC.

Lodging the submission for a Kiribati side event:

Lodgement of a submission to hold a side event does not guarantee the event will be held. The Submission is subject to approval by the UNFCCC. As such the submission has to be very well written and also clearly show support of key stakeholders.

The timing of lodgement is critical to the approval process. The UNFCCC only accepts submissions from the **1 to 4 September 2009, commencing at 11am Central European Time.** Lodging the submission as early as possible has been strongly recommended by the UNFCCC Secretariat.

As a result, the process of approving the Concept Note, and any subsequent documentation, will need to be as streamlined and efficient as possible.

Organisational Acronyms

- NASC – National Adaption Steering Committee
- MELAD – Ministry of Environment, Lands, and Agricultural Development
- OB – Office of the President
- PMU – KAP Project Management Unit
- KAP – Kiribati Adaptation Project
- GoK – Government of Kiribati