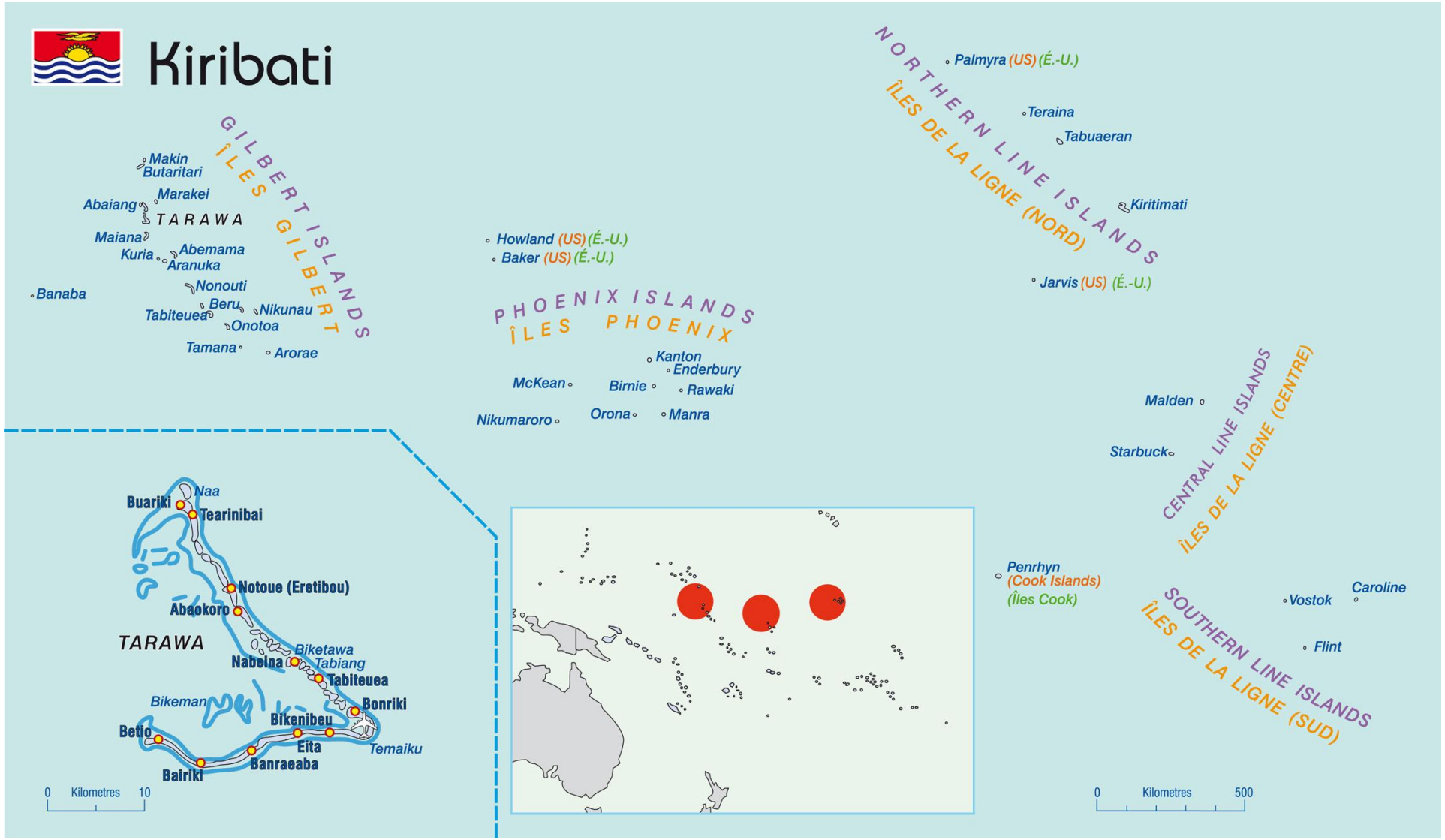
CLIMATE CHANGE PROFILE

KIRIBATI

GLOBAL CLIMATE CHANGE ALLIANCE: PACIFIC SMALL ISLAND STATES PROJECT


Kiribati
GILBERT ISLANDS
ÎLES GILBERT
Makin
Butaritari
Marakei
Abaiang
TARAWA
Maiana
Kuria
Abemama
Aranuka
Nonouti
Banaba
Beru
Nikunau
Tabiteuea
Onotoa
Tamana
Arorae
Howland (US) (É.-U.)
Baker (US) (É.-U.)
PHOENIX ISLANDS
ÎLES PHOENIX
Kanton
Enderbury
McKean
Birnie
Rawaki
Nikumaroro
Orona
Manra
NORTHERN LINE ISLANDS
ÎLES DE LA LIGNE (NORD)
Palmyra (US) (É.-U.)
Teraina
Tabuaeran
Kiritimati
Jarvis (US) (É.-U.)
CENTRAL LINE ISLANDS
ÎLES DE LA LIGNE (CENTRE)
Malden
Starbuck
Penrhyn
(Cook Islands)
(Îles Cook)
SOUTHERN LINE ISLANDS
ÎLES DE LA LIGNE (SUD)
Vostok
Caroline
Flint
Buariki
Naa
Tearinibai
Notoue (Eretibou)
Abaokoro
TARAWA
Biketawa
Tabiang
Nabeina
Tabiteuea
Bonriki
Bikeman
Bikenibeu
Betio
Eita
Temaiku
Banraeaba
Bairiki
0 Kilometres 10
0 Kilometres 500

CONTENTS

Abbreviations

ADB	Asian Development Bank
CCA	Climate Change Adaptation
AusAID	Australia Agency for International Development
CCAF	Climate Change Adaptation Framework
CCCPIR	SPC/GIZ Coping with Climate Change in the Pacific Island Region project implemented on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ)
DRM	Disaster Risk Management
EU	European Union
GCCA: PSIS	Global Climate Change Alliance: Pacific Small Island States Project, funded by the EU, executed by SPC
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIS	Geographic Information System
IMF	International Monetary Fund
JNAP	Joint National Action Plan
KAP	Kiribati Adaptation Programme
KDF	Kiribati Development Plan
KJIP	Kiribati Joint Implementation Plan for Climate Change and Disaster Risk Management
KNEG	Kiribati National Expert Group
MELAD	Ministry of Environment, Lands and Agriculture Development
MFED	Kiribati Ministry of Finance and Economic Development
MDG	Millennium Development Goals
NAPA	National Adaptation Programme of Action
OB-SRMU	Office of the President Strategic Risk Management Unit
PEFA	Public Expenditure and Financial Accountability Framework Assessment
PFM	Public Financial Management system
PIFS	Pacific Islands Forum Secretariat
RERF	Revenue Equalization Reserve Fund
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Environment Programme
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change

OBJECTIVE OF THE CLIMATE CHANGE PROFILE

This second version of the climate change profile for the Republic of Kiribati has been prepared as part of the Secretariat of the Pacific Community's (SPC) Global Climate Change Alliance: Pacific Small Island States (GCCA: PSIS) project. The goal of the GCCA: PSIS project is to support the governments of nine small Pacific Island states, namely Cook Islands, Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Niue, Palau, Tonga and Tuvalu, in their efforts to tackle the adverse effects of climate change. The purpose of the project is to promote long-term strategies and approaches to adaptation planning, and pave the way for more effective and coordinated aid delivery on climate change, including the delivery of streamlined adaptation finance, at the national and regional level.

This climate change profile is specific in nature and seeks to inform the GCCA: PSIS project as well as the larger SPC climate change support team. It commences with a section on the country's background, including geography, future climate, economy, financial management and aid delivery. This is followed by a section focusing on the country's response to climate change, including climate change projections, institutional arrangements, on-going adaptation activities and climate change priorities. The profile is a work in progress and will be revised and enhanced as the project develops.

COUNTRY BACKGROUND

Introduction

Country Information	
Geographic coordinates	Lat. 4^{O}N–3^{O}S, Long. 157^{O}W–172^{O}E
Total land area	811 km^2
Coastline	1,410,000 km
Exclusive economic zone	3,600,000 km^2
Population (2011 estimate)	103,466
Population forecast (2015)	110,280
Annual population growth rate	2.26%
Population density	127 people per km^2
Human Development Index	0.629[i]
Access to improved water supply	70.1% of the urban population [iv]
Improved sanitation facilities	61.4% of households have access
Child mortality rate	69 children die per 1000 live births

The Republic of Kiribati is made up of 33 scattered low-lying islands, dispersed over 3.5 million km^2 in the central Pacific Ocean. From north to south of the group the distance is only 800 km, but from east to west it is more than 3210 km. There are three main island groups: Gilbert, Phoenix and the Line Islands. Kiribati consists of 32 low-lying atolls that rise to no more than a few metres above sea level and Banaba, a raised coral island with a highest point of 81m. Nearly half of its population lives in Tarawa (in the Gilbert islands), which has seen a 24% increase in population over the five years since 2005 and now has a population density of 3,173/km^2.[ii]

Government

Formerly part of the British territory known as the Gilbert and Ellice Islands, Kiribati became an independent republic in 1979, with full membership of the United Nations and the Pacific Islands Forum. The country is member of the Commonwealth and adopts the Westminster model of government. It is a sovereign, democratic state with a 42 member *Maneaba ni Maungatabu* (house of parliament), elected every four years. The *Beretitenti* (President) is elected from among three or four candidates nominated by the *Maneaba* from its ranks. The *Beretitenti* chooses a twelve-member cabinet from the *Maneaba*.[iii]

The outer islands are heavily represented in parliament, with 35 members representing the 50,000 in the outer islands and six members for South Tarawa.

There are 20 island councils and three urban councils. The budget provides annual funding to these councils, totalling around AUD 1.2 million. Councils set policies for agriculture, livestock, and fisheries; buildings and town and village planning; education; forestry and trees; land; famine and drought relief; markets; public health; public order, peace, and safety; communications and public utilities; and trade and industries. Members of the island councils wield discretionary power by issuing licenses for business development and setting such prices as bus fares.[iv]

Table 1 Ministries and offices of government

Ministry of Commerce, Industry and Cooperatives	(MCIC)
Ministry of Communications, Transport and Tourism Development	(MCTTD)
Ministry of Education, Youth and Sport Development	(MEYSD)
Ministry of Environment, Lands and Agricultural Development	(MELAD)
Ministry of Finance and Economic Development	(MFED)
Ministry of Fisheries and Marine Resources Development	(MFMRD)
Ministry of Foreign Affairs and Immigration	(MFAI)
Ministry of Health and Medical Services	(MHMS)
Ministry of Internal Affairs and Social Development	(MISA)
Ministry of Labour and Human Resources Development	(MLHRD)
Ministry of Public Works and Utilities	(MPWU)
Ministry of the Line and Phoenix Islands	(MLPI
Office of the Attorney General	(OAG)
Office of the President	(OB)

National and sector policies and strategies

The Kiribati government maintains a national development plan, the Kiribati Development Plan (KDP).[v] This has been founded on two guiding principles: social protection/gender equity and results-based management. The KDP is traditionally prepared early in the term of each new parliament and is guided by a policy statement prepared by each incoming government. The present KDP 2012–2015[vi] has six broad key policy areas (KPAs) derived from wide consultations undertaken with the various stakeholders that were aligned with line ministry plans and the plans of key development partners. The key policy areas are listed below.

1) **KPA 1: Human resource development.** The key objective is to increase access to and delivery of good quality, inclusive, equitable opportunities as well as strengthening acquisition of relevant technical and professional skills for the domestic and export market through a revamped education and training system and through human development policies for I-Kiribati by the year 2015.
2) **KPA 2: Economic growth and poverty reduction.** The key objective is to enhance inclusive economic development through improving and increasing sustainable employment, financial inclusion for vulnerable groups, structural and fiscal reforms, and accelerating private sector development by the year 2015.
3) **KPA 3: Health** The key objective is to increase access to (and delivery of) good quality health services (including awareness and promotion of healthy lifestyles) so as to improve health and well-being for all I-Kiribati by the year 2015.
4) **KPA 4: Environment** The key objective is to facilitate sustainable development by mitigating the effects of climate change through approaches that protect biodiversity and support the reduction of environmental degradation by the year 2015.

5) **KPA 5: Governance** The key objective is to strengthen national governance systems so as to promote the principles of good governance including accountability, transparency, inclusiveness and public/private sector reforms for I- Kiribati by the year 2015.
6) **KPA 6: Infrastructure** The key objective is to facilitate economic growth, trade, industrialisation and well-being for technological and social transformation through the upgrade and/or development of physical infrastructure, such as sea passages/airports and roads by the year 2015.

The KDP sets out objectives and supporting strategies for each KPA. The last KDP outlined a proposed system for monitoring and evaluating the status and progress of development in each KPA, and these are being elaborated for the current KDP, including clearer designation of lead and supporting agencies and task forces for monitoring and evaluation.[vii] The previous KDP is linked to the Millennium Development Goals (MDGs) and to the Pacific Plan and the Mauritius Strategy for Small Island Developing States. No specific performance levels were specified in that KDP. The draft *Kiribati national assessment report for the five-year review of the Mauritius strategy* prepared in January 2010 noted the poor monitoring performance recorded in 2009.

The Government of Kiribati is currently revising institutional arrangements and technical committees relevant to climate change. A Water and Sanitation Taskforce made recommendations to establish a National Infrastructure Committee to provide, among other things, direction and coordination for the activities of the various infrastructure development projects in the country. A technical level Water Quality Committee has also been established. In addition a Kiribati National Expert Group (KNEG) to develop the Kiribati Joint Implementation Plan for Climate Change and Disaster Risk Management (KJIP). This proposal will be elaborated in further detail by the Government and may involve the role of a Secretariat to support the activities of the Committee.

Given the significant investments made by Kiribati over the years in terms of Climate Change Adaptation (CCA) and the similarities in focus between CCA and Disaster Risk Management (DRM), the currently under development Kiribati Joint Implementation Plan for Disaster Risk Management and Climate Change Adaptation (KJIP) should ensure that any overlaps in relation to previous CCA investments will be taken into account.

In early February 2013, a Regional Support Team (RST) consisting of SPC, SPREP, UNDP, PACCSAP and GIZ completed a first consultation in Kiribati. The following draft working objective and several strategies were agreed among the KNEG: *"Priority actions to increase Kiribati resilience to climate change and reduce disaster risks at national, sector and community level are agreed and potential internal and external sources of funding identified. Climate change and disaster risk management actions are effectively coordinated, monitored and communicated among national and community stakeholders, CSOs, agencies and development partners."* [va]

- Holistic, consultative and participatory approach
- Access Finance & Resources
- Capacity Building & Technology Transfer
- Roles & Responsibilities & Coordination
- Mainstreaming CC & DRM
- Awareness, Communication & Education

Economy

The country has a subsistence economy with copra, seaweed and fisheries being the main sources of foreign exchange earnings. Revenue from the sale of fishing licenses for foreign vessels in the Kiribati exclusive economic zone contributes some AUD 2–3 million per annum. The public sector dominates Kiribati's economy. It provides two-thirds of all formal sector employment and accounts for almost 50% of

the GDP. Remittances and earnings from the Revenue Equalization Reserve Fund are also important. Tourism plays a fairly modest role in the Gilbert Islands but for the Northern Line Islands, especially Christmas Island, tourism has a high priority. [viii,ix]

Kiribati is highly exposed to external economic shocks, particularly surges in food and fuel commodity prices, due to its limited revenue base and high dependency on imports. Progress toward achieving the MDGs is poor, even by regional standards, particularly in certain aspects of health, water, and sanitation. It is unlikely that Kiribati will achieve the target of halving poverty by 2015. High rates of population growth in urban centres stress water and sanitation infrastructure, causing high incidence of water-borne disease.

Economic information	
Gross domestic product (GDP) (2010 est)	USD 619.5 million
GDP per capita (2010 est)	USD 6,200
Annual growth (2010 est)	1.5%
Inflation rate (2007)	0.2%
Unemployment rate (2010 est)	29.7**%**

Financial management

As one of the most remote and geographically dispersed countries in the world, Kiribati faces enormous internal challenges for achieving effective administration. An assessment of Kiribati's public finance management (PFM) system was made in late 2009 using the Public Expenditure and Financial Accountability (PEFA) assessment. The resulting PFM performance report was based on outcomes for the 2006–2008 financial years. The results, as measured by the scores reported for the PEFA indicators, demonstrated that the present PFM system does not meet the requirements of a sound, basic PFM system.

Public sector reform, including strengthened budget management and state-owned enterprise reform, and infrastructure improvements, including the planned development of Kiritimati (Christmas) Island, are important for promoting private sector development and sustainable economic growth.[x]

Ministries and public enterprises develop three year roll-on operational plans (known as ministry operational plans and business operational plans respectively) to execute the implementation of the KDP. It is intended that these plans and their respective budgets should be consistent with the KDP. The National Economic Planning Office is responsible for overall monitoring.[xi]

At present the Kiribati Ministry of Finance and Economic Development (MFED) does not prepare a formal macro-economic framework, setting out specific economic growth, balance of payments, exchange rate, inflation or credit growth forecasts to guide the development of budget fiscal forecasts. MFED does have access to economic forecasts prepared by the Asian Development Bank (ADB), the International Monetary Fund (IMF) and a range of international commercial and government organisations but, according to the EU Draft Roadmap to Budget Support, these generally have a limited influence on policymaking.

The government has limited reserves. In addition, unlike many other countries, the government is unable to draw on conventional monetary policies to influence the level of economic activity due to the absence of a central bank and an independent monetary policy. These constraints limit the government's ability to provide macro-economic support, particularly during periods of economic weakness. The impacts of the latter constraints are reflected in the estimated increase in the incidence of poverty from 22% in 2006 to 28% in 2009, following the recent global crisis. Consequently, macro-economic policy and control of aggregate demand is driven by fiscal considerations.

A modest increase in tax revenue is forecast as a result of a proposed tightening in the compliance regime for company tax and personal income tax. Increased effort in ensuring compliance with import duty rules is planned to help address declining import duty revenue.[xii]

The government continues to implement a pro-poor bias in its expenditure, with a focus on improving the quality and delivery of services in health, education, outer island development and public utilities. The projected wages and salaries share of recurrent expenditure, however, increased from 48.5% in the 2010 budget to 52.1% in the 2011 budget.

Revenue Equalization Reserve Fund (RERF)

To help balance future recurrent budgets in the expectation of limited revenues, the RERF was established with AUD 556,000 in 1956. The Government of Kiribati is both the trustee and the beneficiary and therefore has sole authority over the investment, distribution and utilisation of RERF resources. A reserve fund committee, comprising the Minister for Finance and Economic Planning, Secretary to the Cabinet, Chief Accountant and two others appointed by the Minister, is responsible for overseeing and managing the RERF.

Initially the government followed a conservative policy of capital accumulation and investment, under which the RERF grew to AUD 69 million by 1979. In the early 1990s, as other revenue sources waned and overall fiscal expenditure steadily increased, there was mounting pressure to draw on the fund. In response, the government set an informal annual draw-down limit, which required the real value of the fund not to fall below the real 1996 level of AUD 4,500 per capita.[(vi)]

Since 2003, RERF withdrawals have increased, averaging AUD 35 million from 2006 to 2008, to finance sustained high budget deficits. The IMF estimated in 2009 that draw-downs should be no more than 6%–7% of GDP, yet from 2002 to 2008, annual draw-downs were over 14% of GDP on average. The per capita value of the RERF was estimated to be AUD 5,600 in 2009, which was significantly below its peak of AUD 7,132 in 2000 and its 1996 real value per capita. This situation is worsened by the slump in global financial markets, which reduced the market value of the RERF by an estimated 20% in 2008. A continuation of this trend could undermine the fund's capacity to fulfil its role as a permanent source of budget support. A more prudent approach to government expenditure is needed to reduce the drain on the fund. The RERF also provides strong asset backing to government borrowing, though the government has not been an active borrower in recent years, preferring to use RERF funds directly. [x]

The government is currently addressing three key fiscal policy topics, namely the RERF, the governance of public enterprises, and tax revenues. The IMF has recently reviewed the RERF and changes are likely to be made soon in the way the fund is managed to help ensure that the real value of the RERF on a per capita basis is maintained. Significant subsidies continue to be given to public enterprises; these amounted to AUD 7.9 million in 2010. The ADB is assisting the government in working towards a long-term reduction in the value of these subsidies. The government will have to adopt an overall prudent fiscal stance in the medium term to ensure public debt remains at a manageable level.[xiii]

Aid delivery and donor support

Kiribati receives significant support from its development partners that finances almost all the government's development expenditure. External grants in 2010 were estimated at AUD 55.8 million. The government also borrowed AUD 4 million for development projects in 2010. No donor provides direct budget support at present. The proportion of aid flows that are managed using national procedures is relatively low.

A debt sustainability analysis undertaken jointly by the IMF and the World Bank in 2010 demonstrated that, despite relatively current low external public debt, Kiribati is at high risk of debt distress. Kiribati's debt outlook is projected to deteriorate in the future as Kiribati undertakes infrastructure investment and meets the fiscal costs of climate change.[x]

The Kiribati government holds a biennial Development Partners Forum. The first Forum was held in March 2010, and the second in July 2012. Recent experience in education and health has demonstrated how the existence of sector strategic plans can promote improved donor coordination.

Donor coordination features prominently in the 2011 draft PFM plan for Kiribati. Achieving an increase in donors' use of the Kiribati PFM system is one of the five strategic objectives set out in the draft PFM plan.

RESPONSE TO CLIMATE CHANGE

Current and future climate

Current climate

Overall, Kiribati has a hot, humid tropical climate. In the case of Tarawa, annual maximum and minimum temperatures are consistently high throughout the year with a range of less than 1°C.There is a large variation in mean annual rainfall across Kiribati. A notable zone of lower rainfall, less than 1500 mm per year exists near the equator and extends eastwards from 170°E. On average, Tarawa receives just under 2100 mm, while the islands of Butaritari only 350 km to the north receive in the vicinity of 3000 mm. Driest and wettest periods in the year vary from location to location.[xiv]

There is a strong relationship between the El Niño-Southern Oscillation and Kiribati climate. El Niño is generally associated with above normal rainfall and strong westerly winds, while La Niña is associated below normal rainfall.

The impact of droughts, usually associated with La Niña, can be very severe in Kiribati. For example 1971, 1985, 1998 and 1999 annual rainfall was less than 750 mm. The recent drought from April 2007 to early 2009 severely affected the southern Kiribati islands and Banaba. During this period, ground water turned brackish and the leaves of most plants turned yellow. Copra production declined, which is the main income source for people in the outer islands. During the 1970–1971 drought, the complete loss of coconut trees was reported at Kenna village on Abemama in central Kiribati. Other important extreme events include storm surges and extreme sea levels[xv,xvi]

Expected future climate[xvii]

Future projections of climate change for Kiribati generally show the following changes over the next 20 to 30 years: (i) average air temperature will increase by 0.30C to 1.30C; (ii) increase in the number of very hot days; (iii) decrease in the cooler weather; (iv) increase in average annual and seasonal rainfall; (v) increase in sea surface temperature; (vi) increases in ocean acidification; and (vii) sea level will continue to rise. Projections about the future behaviour of El Niño-Southern Oscillation are uncertain at the moment.

Table 1: Climate change projections for Kiribati for 2030 and 2055 under the high emissions scenario (A2). In the summary table differences in projections are noted Gilbert Islands (G), Phoenix Islands (P) and Line Islands (L).

Climate variable	Expected change	Projected change by 2030 (A2)	Projected change 2055 (A2)	Confidence level
Annual surface temperature	Average air temperature will increase	+0.3 –1.3°C G +0.4–1.2°C P, L	+1.6 ± 0.6°C G +1.6 ± 0.5°C P +1.5 ± 0.5°C L	Moderate
Maximum temperature (1 in	More very hot days	N/A	+1.5 ± 0.6°C G +1.5 ± 0.8°C P	Low

20 year event)			+1.6 ± 0.9°C L	
Minimum temperature (1 in 20 year event)	Decline in cooler weather	N/A	+1.5 ± 2.0°C G +1.5 ± 2.1°C P, L	Low
Annual total rainfall	Annual rainfall will increase	+7 ± 21% G +8 ± 21% P +6 ± 19% L	+23 ± 34% G +22 ± 41% P +13 ± 40% L	Low
Wet season rainfall	Wet season rainfall will increase	+5 ± 25% G +6 ± 31% P +6 ± 23% L	+18 ± 40% G +20 ± 54% P +13 ± 41% L	Low
Dry season rainfall	Dry season rainfall will increase	+12 ± 25% G +12 ± 31% P +6 ± 18% L	+31 ± 47% G +29 ± 73% P +13 ± 41% L	Low
Sea-surface temperature	Sea surface temperature will increase	+0.8 ± 0.6°C G +0.8 ± 0.5°C P +0.7 ± 0.4°C L	+1.5 ± 0.7°C G +1.5 ± 0.6°C P +1.4 ± 0.6°C L	Moderate
Annual maximum acidification (aragonite saturation)	Ocean acidification will continue to increase	+3.4 ± 0.2 Ωar	+3.1 ± 0.1 Ωar	Moderate
Mean sea level	Sea level will continue to rise	+9 (5 to14) cm	+19 (10 to 28) cm	Moderate

Institutional arrangements for climate change

Historically, climate change issues in Kiribati were the mandate of the Ministry of Environment, Lands and Agriculture Development (MELAD). MELAD headed the national team under the Pacific Islands Climate Change Assistance Programme and was responsible for preparing both the National Communication (1999) as well as the Climate Change National Implementation Strategy (2003). MELAD secured a National Adaptation Program of Action (NAPA) grant in early 2004 and the NAPA team was mobilised to prepare a NAPA in accordance with United Nations Framework Convention on Climate Change (UNFCCC) guidelines.[xviii]

Whilst MELAD included the bulk of the technical expertise on climate change, it lacked institutional leverage to influence the programmes of other vital sectors, such as public works, internal affairs, fisheries and natural resources. This was recognised both within Kiribati, as well as regionally. During early consultations on the Kiribati Adaptation Programme (KAP-I), it was therefore decided that the Office of the President would chair the KAP's National Adaptation Steering Committee, and the MFED would execute the project. This arrangement worked well in mainstreaming adaptation into economic planning, but it worked less well in mobilising the technical experts necessary to prioritise adaptation investments.

The situation in 2012 sees the KAP Steering Committee re-established under a new name, National Adaptation Steering Committee (NASC), under the Office of the President. The KAP Project Management Unit is the Secretariat for the Steering Committee. The NASC oversees the joint work programme for the NAPA and KAP.[xix] The existing NAPA team became the Climate Change Study Team, the technical team for the unified programme, reporting to the steering committee. The NAPA Management Unit of MELAD has been acting as the Secretariat for the Climate Change Study Team which has recently finalized the second National Communications to the UNFCCC.

Thus two separate project management units exist, with the Office of the President having responsibility for the overall supervision of the unified climate work. The Strategic Risk Management Unit within the Office of the President has as part of its mandate: to develop and coordinate the national policy on climate change, including the coordination of implementation at the broad national level.

The National Framework on Climate Change and Climate Change Adaptation[xx] outlines the broad functions of the Strategic Risk Management Unit and provides national guidance in addressing the issue of climate change. The six broad elements of the Framework include:

1) mainstreaming into national planning and institutional capacity
2) external finance and technical assistance
3) population and resettlement
4) governance and services
5) survivability and self-reliance
6) mitigation.

In November, 2012 the Government of Kiribati made a request to SPC and the Secretariat of the Pacific Regional Environment Program (SPREP) for support to develop a joint national action plan on climate change and disaster risk management; now called the Kiribati Joint Implementation Plan (KJIP). The KJIP is being developed following the recent endorsement of two key strategic frameworks; the Disaster Risk Reduction Management Plan; and the National Framework for Climate Change and Climate Change Adaptation. The process of developing the KJIP is being led by the government of Kiribati, which has established a Kiribati National Expert Group (KNEG) encompassing experts from the Office of the President (OB), line ministries and non-state actors.

Ongoing climate change adaptation relevant activities in Kiribati

Title	Description and country focus and agencies responsible
The Kiribati Adaptation Programme (KAP) *2003–2005* *2006–2010* *2011–2016*	Aims at improving the resilience of Kiribati to the impacts of climate change on freshwater supply and coastal infrastructure. Earlier phases of the project produced a master plan for water supply for South Tarawa, and pilot projects for leakage reduction and rainwater collection. The third phase (KAP 3) contributes to (i) improving the use and management of water resources, including leakage reduction programme, (ii) increasing coastal resilience, and (iii) strengthening the capacity of the government to manage its water resources and the effects of climate change and natural hazards. KAP 3 was approved in September 2011 with a total budget of USD 10.55 million, half of which is allocated to the water sector.[xxi] Agencies responsible: World Bank, Global Environment Facility (GEF), and AusAID. Kiribati – OB, MELAD, MPWU
NAPA proposal under the Least Developed Country Fund (LDCF)Enhancing national food security in the context of global climate change *2004- 2013*	The KAP and NAPA have identified several priority actions to be implemented, aligned with the Kiribati Development Plan: 2008–2011, which has identified the need to protect and replenish natural resources and to monitor and control coastal erosion as some of its key priorities. This project aims to support the following: 1. strengthening environmental climate change information and monitoring 2. project management institutional strengthening for NAPA 3. upgrading of meteorological services 4. agricultural food crops development 5. coral reef restoration, monitoring and stock enhancement Agency responsible: UNDP, Kiribati-MELAD
Pacific Adaption to Climate Change (PACC)	Supporting delivery of practical community-based adaptation measures and building capacity to adapt to climate change, building on the PACC model. Its two components are: 1) Adaptation implementation, focusing on addressing NAPA priorities and providing support for the implementation of adaptation measures in the water sector,

Title	Description and country focus and agencies responsible
2012–2013	particularly the outer islands, 2) provision of capacity building for both national and community-based groups in Kiribati, including training on V&A assessments and communications. Agencies responsible: USAID, SPREP, Kiribati – OB, MELAD
Finnish-Pacific Project to Reduce Vulnerability of the Pacific Island Countries' livelihoods to the effects of Climate Change (FINPAC) *2012–2015*	Development of capacity of villages to prepare and respond to the changing weather patterns and climate trends by using improved services produced by National Meteorological Services (NMSs), including development of early warning systems and improved dialogue between disaster managers and NMSs and with end users of weather and climate information for the benefit of the life of villagers in PICTs, weather information to include information and the implications for planting, harvesting or fishing. 3..2 million USD Agencies responsible: Government of Finland, SPREP, Kiribati – National Met. Service
Pacific - Australia Climate Change Science and Adaptation Planning Program (PACCSAP) *2011–2013*	PACCSAP: supporting the government develop improved climate change projections and adaptation planning activities. 2011–2013. 14 other Pacific countries are part of this AUD 32 million project which builds on the foundation of the Pacific Climate Change Science Programme and the Pacific Adaptation Strategy Assistance Programme. Agencies responsible: AUSAID; Australian Department of Climate Change and Energy Efficiency; Australian Bureau of Meteorology, Commonwealth Scientific and Industrial Research Organisation, Kiribati: National Meteorological Service
Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries (Pacific IWRM) *2008–2013*	Pacific IWRM is developing 'Ridge to Reef – Community to Catchment' integrated water resource management (IWRM) activities in the 14 participating Pacific Island countries. USD 500,000 Agencies responsible: GEF, SPC Applied Geosciences and Technology Division (SOPAC), Kiribati – MPWU
UNICEF Pacific's Health a nd Sanitation programme *2008–2012*	The main objectives for Kiribati are to focus on providing water supply and sanitation i nfrastructure in primary schools and households near schools, and hygiene promotion. Agencies Responsible: UNICEF, SPC-SOPAC Division, Kiribati -UN Joint Presence Office, MHMS, MPWU
Kiriwatsan project 2011-2014	Aims at improving reliability of dry-season and drought-period water supply to urban and rural areas through rainwater harvesting and management, and protection of groundwater resources. The main objectives are to increase access to water supply and sanitation with some of the activities targeting primary schools and households near schools, and hygiene promotion. European Union EDF10 A-Envelope water supply and sanitation. Agency responsible: European Union Kiribati - MPWU

Title	Description and country focus and agencies responsible
Kiribati Urban Development Program (UDP) formerly the Sustainable Towns Programme *2010–*	This was designed to manage the effects of rapid urbanisation. Components of the programme include more housing; improving infrastructure such as waste management, roads and water access; strengthening the capabilities of local agencies; and reducing vulnerability to climate change. Agencies Responsible: Bilateral Programme NZAID Kiribati – MELAD, MPWU
South Tarawa Sanitation Sector Improvement Project Loan and Grant commencing *2013*	Improving sanitation infrastructure, sewerage and maintenance capacity, and public hygiene in the densely populated islets of South Tarawa. The project will help reduce waterborne diseases, including diarrhea in babies, which contribute to Kiribati having one of the highest infant mortality rates in the world. Agencies Responsible: ADB, MPWU
EU Environmentally Safe Aggregates for Tarawa (ESAT) *2008–2013*	Supporting the community of Kiribati to combat coastal erosion on its most densely populated atoll, Tarawa, by replacing local practice of mining the beaches for sand, gravel, rocks and shells (aggregate) by alternative sources of aggregates to be taken from the lagoon. € 2,080,000 Agencies responsible: SPC SOPAC Division, Kiribati Minerals Unit.
Global Climate Change Alliance: Pacific Small Island States (SPC-GCCA:PSIS) *2011–2014*	The overall objective of the GCCA:PSIS is to support the governments of nine small Pacific Island states, including Kiribati, in their efforts to tackle the adverse effects of climate change. Overall available funding is € 11 m. Activities in Kiribati include assistance with the development of a climate change communications strategy, the KJIP, and a climate change adaptation implementation activity in the health sector. The project will provide the Ministry of Health and Medical Services (MHMS) with the necessary equipment and training so that the Environmental Health Unit (EHU) can monitor and respond to vector-borne diseases, especially dengue fever, and other climate sensitive health impacts on water, food poisoning, and ciguatera. The surveillance and other activities may be expanded to selected outer islands. The project will also provide for public education and outreach and will especially target vulnerable groups such as women, children, the disabled and those with pre-existing illnesses. Agencies responsible: European Union, SPC, NIWA, WHO SPREP Kiribati—OB SMRU and MHMS
USP-EU GCCA Project *2011–2014*	The USP-EU GCCA project addresses the challenges of climate change impacts in the 15 Pacific ACP countries, through capacity building, community engagement, and applied research. The objective of this project is to develop and strengthen the Pacific ACP countries' capacity to adapt to the impacts of climate change. Overall available funding is € 8 m. Agencies responsible: European Union, University of the South Pacific, Kiribati Extension Centre
SPC/GIZ Coping with Climate Change in the Pacific Island Region (CCCPIR)	SPC/GIZ CCCPIR covers 12 Pacific Island countries and six components, ranging from regional and national mainstreaming of climate change, implementation of adaptation activities on the ground in tourism, energy and education. In Kiribati CCCPIR focuses on supporting national coordination in climate change and Disaster Risk Management (e.g. the Kiribati Joint Implementation Plan) and the fisheries, livestock, education and energy sectors. Jointly with other SPC and SPREP climate change programs an

Title	Description and country focus and agencies responsible
2009–2015	integrated "Whole of Island" climate change approach is to be implemented soon. Overall available funding of SPC/GIZ CCCPIR for the region is up to € 18,45 million. Agencies responsible: SPC and GIZ GmbH on behalf of the German Ministry for Economic Cooperation and Development (BMZ). Kiribati: MFA, OB, MELAD, MFMRD, MoE, MPWU, KTC, KIT and a multi-sector working group.
Kiribati Food Crisis Response Operation *2011–2012*	A grant to contribute to the Government of Kiribati's short-term efforts to improve the availability and affordability of food on the outer islands of Kiribati and encourage the production of local agricultural produce. by supporting the government's import levy fund. An emergency recovery grant of USD 2 million to the Republic of Kiribati for the Food Crisis Response Operation. Agencies responsible: ADB, Kiribati- MFED, MCIC
Centres of Excellence for Atoll Agriculture Research and Development *2010–2012*	The Centres are to become focal points for Pacific scientists working on the development of technologies to help atoll farmers increase their productivity. Supports documentation and promotion of traditional food production, preparation and preservation, action research and extension activities to address issues such as poor soil, irrigation and limited resource base of coral atolls. Agencies responsible: SPC Land Resources Division, Kiribati MELAD
Assistance to small-scale atoll farmers cultivating Sigatoka disease-free bananas for food security in Kiribati *2010–2012*	A replica of the Disease-free Atoll Banana project carried out in the Marshall Islands. Through FAO's Technical Cooperation Programme (TCP) assistance and the Regional Programmes for Food Security (RPFS), recent support has focused on increased food crop production to enhance food security and improve diets. TCP support has been provided for growing Sigatoka disease-resistant banana varieties and an RPFS project aimed at increasing local food production through the establishment of nurseries to supply planting materials and training of farmers. Additional technical assistance has been provided for establishing a food processing unit. Agencies responsible: *FAO UNDP* Kiribati - MELAD
Kiribati road rehabilitation project *2012–2016*	To improve the condition of South Tarawa's main road network and help strengthen road financing and maintenance capacity. There are three components to the project: (a) infrastructure improvements. This component consists of the main civil works activities to be undertaken on the South Tarawa road infrastructure, including the reconstruction and rehabilitation of paved roads on South Tarawa; and rehabilitation of Betio causeway, (b) road sector reform. This component helps to maintain the activities for a more sustainable main road infrastructure in South Tarawa, (c) project support. Total USD 38 million IDA Grant 20,000,000.00, Asian Development Bank 12,000,000.00, Pacific Regional Infrastructure Facility Trust Fund 5,790,000.00, Government of Kiribati 1,050,000.00 MPWU
ADB Technical assistance outer island growth centres *2010–2012*	Identify necessary infrastructure and supporting systems for sustainable use of natural resources in Kiritimati Island and employment generation. The output of the technical assistance are recommendations of priority projects for selected outer island growth centres, and a long-term strategic development plan for Kiritimati Island that considers land use planning and zoning for residential, business and protected areas;

Title	Description and country focus and agencies responsible
	tourism; transportation; expanded water/sewer systems; protection of fresh-water lenses; solid waste management; and necessary supporting infrastructure. Agencies responsible: ADB, Kiribati – MFED USD800,000
Solar energy for outer islands *2010–2014*	Objectives: (a) to improve the living standards in the outer islands through household and community electrification; and (b) to reduce the migration to the capital. The installation of 1710 solar home systems is now completed on 18 islands; the next phase will be the installation of 96 solar systems to the *maneaba* (village meeting hall) on the 18 islands. Total Amount: USD 4,000,000 Agencies responsible: European Union, Kiribati MISA, MPWU, MFED
Maintaining renewable energy systems in Kiribati through technical training *2010–2012*	Training programme for island technicians due to increasing use of solar photovoltaic stand-alone systems in the outer islands of Kiribati. It also enables Kiribati to address the sustainability of maintaining solar photovoltaic stand-alone systems by island technicians. Main Deliverables: 1. Refresher training programme for technician supervisors; 2. Training programme for island technicians; 3. Increased number of trained island technicians; and 4. A resource mobilization strategy for replicating best practices to other island communities. USD 35,000 Agencies Responsible: UNDP, Kiribati MPWU
43418: Strengthened Public Financial Management *2011–2013*	The Government of Kiribati expressed a need for technical assistance on public financial management in 2010 to address priority areas of weaknesses identified in the Public Expenditure and Financial Accountability (PEFA) assessment. Based on the assessment, the Government, with assistance from the European Union, put together a draft public financial management plan to provide guidance on reform activities in a coherent and coordinated manner. The plan indicated three priority areas: (a) improving accounting practices; (b) strengthening revenue management and policy and; (c) building capacity within MFED. Discussion between ADB, government and development partners determined a focus by ADB on improving accounting practices through an integrated capacity building programme would complement the ongoing ADB TA efforts in assisting the government. ADB 800,000, USD 1 million Australia Grant, follow up proposed for further implementation from 2013. Kiribati MFED.
Quality of Teaching Education for Sustainable Development and Climate Change *2009–2012*	Two objectives: (a) to improve the quality of education in Kiribati and (b) to make Kiribati education more relevant to the Pacific and Kiribati context. USD 36,016 Agencies Responsible: UNESCO, Kiribati Ministry of Education
Climate Change and Health Adaptation Project	Improving the implementation of environmental health surveillance and response to climate sensitive health risks in Kiribati. Key areas focused on include water quality and water-borne diseases; food safety and food-borne diseases; vector control works and vector-borne diseases; climate sensitive disease surveillance. These 4 key areas of health-related vulnerability to climate change were outlined in the development of

Title	Description and country focus and agencies responsible
2010-2013	the NCCHAPP, 2011. Agencies Responsible: WHO, MHMS
Integrated water quality monitoring programme for water and sanitation-related planning and operational decision-making in Tarawa *2012-2014*	This project aims to develop capacity and implement and sustain an integrated water quality monitoring network extended to cover lagoon/coastal-related water quality. The overall objective is focused on providing baseline and regular data to better inform and prioritise water and sanitation infrastructure investment decision-making. The primary focus of the project will be on establishing and sustaining an in-country lagoon water quality monitoring programme. The project will also assist and improve processes and activities related to the wider water quality activities on South Tarawa. Agencies Responsible: Funded by New Zealand's Aid Programme (NZAID), through the National Institute of Water and Atmospheric research (NIWA) Kiribati – MPWU, MHMS, MFMRD
International Climate Change Initiative (ICCAI), SPC-AusAID, *2012 – 2013*	A regional activity with health components implemented through SPC-PHD including advancing Climate Change and Health Vulnerability Assessment and Synthesis Report for the Pacific, support for staff within SPC-PHD to provide technical assistance to Kiribati, provision of in country training, and information sharing activities, such as a regional symposium in September 2012, and publications/communications through Inform Action.
Kiribati Joint Implementation Plan (KJIP) for Climate Change Adaptation and Disaster Risk Management *2013-2018*	Following a request by Kiribati in January 2013, CROP agencies are assisting Kiribati with the development of the KJIP.

National climate change priorities

The Kiribati government's climate change strategies focus on two objectives: firstly, adapting to and, secondly, relocating from climate change. There is little justification for Kiribati contemplating actions to mitigate climate change due to its extremely low level of CO_2 emissions, the second lowest level reported in the world in 2005.

Work began on Kiribati's NAPA in 2004 and it was completed in 2007. The Kiribati Adaptation Program (KAP) also commenced in 2003–2004 and is now in its third phase (KAP III), with priority given to activities in the areas of freshwater supply and coastal protection. In the meantime, Kiribati also developed a Climate Change Adaptation Plan and Strategy, which is now being updated in the form of a National Framework for Climate Change and Climate Change Adaptation. Kiribati also recently completed its second national communication to the UNFCCC in 2013, and its activities in the climate change arena align with its priorities under the Kiribati Development Plan (KDP, 2008–2011).

The National Climate Change Adaptation Strategy 2005 aims to implement the government's policy on adaptation to climate change, which states that: [xxii]

- Kiribati people should be mentally, physically and financially well prepared to deal with whatever climatic trends and events the future may hold;

- This should be achieved through a nationally coordinated, participation-based adaptation programme carried out by official and private agencies;
- External financial assistance should be obtained to meet the costs of the national adaptation programme.

These goals are to be achieved through:

- The Government of Kiribati developing the Joint Action Plan on Climate Change Adaptation and Disaster Risk Management, and to integrate climate change into the next KDP 2012–15;
- securing future assistance to support implementation of the Joint Action Plan;
- GoK (through KAP III) to improve community engagement processes to improve community ownership of climate change infrastructure;
- Mainstreaming climate change adaptation into national planning and budgeting.

The joint national summit on the Kiribati Development Plan (2012–2015) and The National Framework for Action on Climate Change and Climate Change Adaptation, carried out in May 2011, have paved the way for this work.[xxiii] The Kiribati government recognises that, with climate change threatening the long-term survival of Kiribati, the relocation of its people may be inevitable. The concept of 'migration with dignity' is part of the Government's relocation policy. The relocation strategy of the Kiribati Government has two key components. Firstly, to create opportunities to enable the migration of those who wish to do so now and in the future. This is to assist in establishing expatriate communities of I-Kiribati, to absorb and support greater numbers of migrants in the longer term and benefit those who remain by increasing the level of remittances. Secondly, the objective is to raise the standard of qualifications of I-Kiribati to a level equivalent to those in countries such as Australia and New Zealand. This will make qualified I-Kiribati more attractive as migrants, and will also improve the standards of services available locally.

Since June 2010, the Kiribati Ministry of Health and Medical Services has been working with the World Health Organization, supported by a team of climate change and health experts from the University of Auckland (New Zealand) to carry out a climate change and health vulnerability analysis. This has included stakeholder consultations, a review of the health sector's capacity to deal with current and future climate-sensitive health risks, and analysis of the available data on climate and climate-sensitive diseases in Kiribati. The National Climate Change and Health Action Plan produced from this process describes the specific health risks posed by climate change in Kiribati, and outlines strategies that may be followed to anticipate and avoid the most serious impacts of climate change on health.

Other activities in Kiribati that are not specifically related to climate change, but are relevant include:

- National Sanitation Implementation Plan (coordinated by the National Water and Sanitation Committee, through the Ministry of Public Works and Utilities) released March 2010;
- The national disaster risk management plan (now being combined to the KJIP).

Challenges to effective adaptation

As mentioned previously, Kiribati is comprised of mostly low-lying coral atolls, with highly vulnerable environmental systems that are relied upon for food sources, the subsistence economy, and for national exports. Kiribati faces a daunting range of environmental challenges, including loss of biodiversity, degradation of critical habitats, threats to fresh-water resources and marine-water quality, degradation and overuse of coastal and marine resources, unsustainable forestry and land-use practices, and increased generation of non-biodegradable wastes. Many of these challenges are exacerbated by climate change and climate variability, with food, water security, and coastal impacts being of primary concern. Effective planning, monitoring and response to these challenges over time will be key in implementing effective adaptation measures.

The government of Kiribati highlighted its priority needs for adaptation to climate change in the KDP, NAPA, Adaptation Framework and other documents. Kiribati has made good progress in addressing climate change issues with the support of its regional and international development partners starting with KAP project and now being furthered through several projects including SPC-GCCA: PSIS which has been guided by the Government of Kiribati to focus on the health sector.

The health impacts of climate change are specifically noted in the Kiribati National Adaptation Programme of Action (NAPA, 2007): 'Human health is the recipient of all downstream effects of the impacts of climate change on other sectors, such as agriculture, fisheries, water supply, coastal areas, biodiversity resources and waste management'. The National Climate Change and Health Action Plan identified strengthening disease surveillance, improved transport for staff to carry out environmental testing, training in testing and analysis, equipment and workspace as key needs, particularly in the priority areas requiring consideration for climate change and health planning and adaptation in Kiribati:

- water safety and water-borne diseases
- food safety and food-borne diseases
- vector-borne diseases.

:
However, some key challenges still remain and will compromise future long term efforts unless effectively addressed.

Of particular note are capacity constraints. There is a general lack of highly skilled personnel, in permanent positions, to take on the task of managing climate change risks over the near and long term, with most key staff in country having too many different tasks and undertaking frequent duty travel. Short term personnel and project personnel only go some way to addressing this gap, There has been limited uptake of interns and technical assistance offered under externally funded programmes. Other constraints such as space to accommodate a staff member, transport for them to do their work, mandate, or sustainability may need to be taken into account. Sometimes partners require that these positions be hired in line with capped government pay-scales, and this is not attractive to qualified applicants. The lesson learnt is that even if funding support is available for in-country engagement one has to find systems that work without that person being in place. Climate change education at primary, secondary and tertiary levels, short term training, on-the-job training and job attachments are critical to address the capacity gap. So too is the need to develop innovative ways to retain skilled personnel in country through appropriate levels of remuneration and other means.

Raising public awareness about climate change risks is another important activity that needs to be implemented through a planned process thereby moving away from ad hoc approaches.

Given that many of climate change activities implemented in Kiribati are project based, with 3-5 year time frames, the results and outcomes may not always be sustainable. Kiribati is already making efforts and considering ways to prepare a financing strategy for disaster risk management and climate change activities and to tailor new projects to address specific gaps in their national agenda, and this approach needs to be maintained and expanded. .

Integration of climate change into national, sector and community programmes, projects and activities is needed on a continual basis over the long term and there is a need to create an enabling environment for engaging with both local communities and national level government.. Several partnerships are apparent in Kiribati based on the range of organisations and funding envelopes from ADB, PACCSAP, IWRM, EU, UNICEF and SPC/GIZ supporting related activities. The partnerships based on the technical assistance provided by regional and global programs generally lack synergy of actions with local community groups, with involvement often being limited to government implementing partners. Linkages can take many forms. An accounting of linkages in the many forms such as provision of support and resources, capacity building, coordination and collaboration that can range from informal, personal relationships to formal agreements may prove valuable in highlighting limitations of enabling mechanisms towards partnership fatigue and overlap.

Another key challenge for Kiribati is to ensure that gender-sensitivity and disability inclusiveness is addressed in its climate change programmes, projects and activities. Climate change affects communities and individuals in different ways and it is important to ensure that climate change activities are fully inclusive of these special groups However, thus far there is very little documentation on specifics

about the engagement process or specific climate change responses to measure impacts and benefits of the adaptation activities both at national and community level.

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[i] The human development index (HDI) is a comparative measure of life expectancy, literacy, education, and standards of living for countries worldwide. It is a standard means of measuring well-being, especially child welfare. It is used to distinguish whether the country is a developed, a developing or an under-developed country, and also to measure the impact of economic policies on the quality of life. The HDI score gives Kiribati a rank of 121 out of 187 countries with comparable data and below the regional average of 0.683.

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