



PHOENIX ISLANDS PROTECTED AREA  
KIRIBATI



## **The Phoenix Islands Protected Area Management Plan 2015 - 2020**

**MIISTRY OF ENVIRONMENT, LANDS AND AGRICULTURAL  
DEVELOPMENT, BIKENIBEU TARAWA, REPUBLIC OF KIRIBATI**

## **Foreword**

At the first sitting of Parliament held earlier this year, the debate on the bill on Kiribati contribution to the PIPA Conservation Trust totalling U.S.\$2.5million was unanimously agreed by all the Parties. For the first time, PIPA sets a record to unite all Parties to speak in one voice supporting the bill, a testimony to the undivided political support for the PIPA initiative. The contribution is to match that of the Conservation International, which provides the other half towards the initial capitalization of the PIPA Conservation Trust that was established to provide the long term financial vehicle for the PIPA operations and management. The implementation of the first PIPA Management Plan (2012-2014) was supported under UNEP PIPA GEF grant and co-financed by PIPA Partners, Conservation International and New England Aquarium, and the Kiribati Government.

The Kiribati Cabinet decision to fully close the whole of PIPA from commercial fishing in January 2015 is timely to address the current problems faced by the oceans such as overfishing, impacts of climate change, pollution, among others. PIPA is so remote and isolated and with only Kanton island inhabited of less than 40 people, the marine and terrestrial environment will remain intact and healthy and may become an important source to regenerate the depleted fish stocks, corals and other marine species within PIPA and beyond its boundaries. The absence of human impact and other threats to the marine life makes PIPA an ideal site for a classic global marine laboratory to study the effects of climate change on the marine environment. As a known breeding and feeding ground for tuna, PIPA location in the middle of the Pacific Ocean may also play an important role in enhancing the tuna stocks both within and beyond. The participation of the Forum Island Countries in managing the oceans through the Pacific Oceanscape initiative would greatly contribute to the health of the oceans and global food security.

Like other large marine protected areas, PIPA is also facing problems in the policing and monitoring of the vast area. The existing agreements and arrangements with bilateral partners in support of PIPA surveillance therefore should be further enhanced. Border protection should also be strengthened to avoid the accidental introduction of the unwanted invasive species that may cause damage to the terrestrial life including the birds and atoll ecosystems. Recently, the Surveillance and Biosecurity Advisory Sub-Committees had been established with key roles of providing advice to the PIPA Management Committee (PMC) on surveillance and biosecurity related matters.

This Management Plan lays out key strategic actions to be carried out for the next 5 years with the overall target to maintain the pristine nature of PIPA's environment. This is crucial being PIPA is UNESCO's world heritage site. Like other world heritage sites in other parts of the world, this Plan also identifies eco-tourism development as another important activity that could generate additional revenue to support PIPA's operations and management. The recent findings on Nikumaroro Island pointing to the compelling facts that island is truly the graveyard of the American aviation legend, Amelia Earhart, only add more eco-tourism value to PIPA. The plan would, however target high end and low volume tourism to avoid the likely negative impacts on PIPA's pristine environment. It is good to see the Tourism Advisory Sub-Committee has also been established to assist the PMC in a sound ecological tourism development.

The Kiribati government looks forward to working closely with its PIPA Partners and donors, to implement this new PIPA Management Plan for the next five years. This Management Plan is again the expression of the Kiribati people's commitment to take care of our planet for the good of mankind.

We welcome your support.

  
HE Anote Tong  
BERETITENTI (PRESIDENT)  
Republic of Kiribati 31, December, 2014

## **Executive Summary**

The Phoenix Islands lie in the heart of the Pacific Ocean and are one of the most remote island chains on Earth. They are located approximately halfway between Fiji and Hawaii. The largest atoll, Kanton, is 1,750 km (1,087 miles) from the Kiribati capital Tarawa. The eight islands are uninhabited except for Kanton Atoll that houses a small caretaker population.

Due to its remoteness and isolation, the Phoenix Islands could be one of the last atoll and reef island archipelagos on earth with unique values still unspoiled, including pristine coral reefs, abundance of fish and other marine wildlife, including globally important seabird populations. To protect these values the Kiribati government declared the Phoenix Islands Protected Area (PIPA) in 2006 which subsequently became extended under formal designation with a total area of 407,112 sq.km (157,187 sq.miles) with the adoption of the PIPA Regulations 2008<sup>1</sup>. At this time PIPA was the world's largest marine protected area. These regulations and the PIPA Trust Conservation Act 2009 enacted by Kiribati and supported by its partners aim to ensure the sustainable financing needed for the conservation and management of PIPA is well established.

This second PIPA Management Plan (2015-2020) is a continuation and progression of the first PIPA Management Plan (2011-2014) which expired last year. The first Management Plan was financed under the GEF whilst this Plan is being funded by the PIPA Trust through donations from government institutions and private foundations. The Plan has been reviewed and approved by the PIPA Trust Board and is now designated the Accepted PIPA Management Plan.

This Updated PIPA Management Plan is similar to the first Plan in terms of format and structure although most of the sections have been amended or updated. It is divided into 4 main chapters: (1) the description of PIPA; (2) PIPA human uses, threats, issues and challenges; (3) PIPA vision and management objectives and; (4) PIPA strategic action plan 2015 – 2020.

Chapters 1 to 3 provides background information on PIPA including its geographical, boundaries, current uses by the government, world heritage values, threats and challenges. Importantly, Chapter 3 outlines Kiribati's long term vision and management objectives for PIPA.

Chapter 4 is considered the heart of the plan for action. It contains the PIPA strategic action plans (SAPs) for the next five years (2015 – 2020). The plans provide the framework, actions and targets to implement PIPA's Management Objectives through the implementation of this Plan. The SAPs are categorized into three key components: PIPA Core Management; PIPA "Issues to Results" and the State of PIPA report required by 2020.

The PIPA Core Management (SAP 1) provides for the requisite decision making, administration, management, resourcing and operation of the PIPA. These activities are regarded as essential for the basic maintenance of the PIPA to allow meeting obligations under the relevant statute(s). In addition to the core management requirements, a number of key prioritized issues for PIPA requiring targeted action are identified for this management plan (SAP 2). These include: PIPA atoll & reef restoration and biosecurity, coral reefs and coastal management, endangered and threatened species, offshore fisheries, cultural and historical heritage, seamounts and deep sea conservation, and addressing climate change issues in PIPA. For each 'issues to results' the baseline status of the issue is at hand

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<sup>1</sup> This PIPA Regulation was further amended by Cabinet in December 2014 to capture the changed coordinates that have been adjusted when the boundaries between PIPA and the countries of Tokelau and the United States were delimited with Treatise signed between Kiribati and Tokelau in 2012 and between Kiribati and the US in 2013. See Figure 2 and Appendix 2.

summarized as at January 2015 and a target state is identified for this Plan (SAP 2.1 – SAP 2.7) by no later than 2020, and a series of actions to get there outlined.

As required under the PIPA Regulations 2008 and from the outcome of the various actions implemented, the State of PIPA Report 2020 will be produced (SAP 3). This report will be used as a basis for evaluation of the effectiveness of PIPA management to date, issues arising and will provide input to the next PIPA Management Plan to be effective from 1 January 2020.

### **PIPA Management Plan Process and Review**

The preparation of the Updated PIPA Management Plan involves the following; Firstly, a PMC workshop was conducted by MELAD and the PIO with the objective to provide the Committee with the progress in the implementation of the PIPA Management Plan 2011-2014. At the same time, the Committee also agreed on inputs/updates from key Ministries on the various core management and targeted activities for the Updated PIPA Management Plan. Ministries represented on the PMC include:

- MELAD (the Environment and Conservation Division, PIPA Office),
- Ministry representatives from Fisheries, the Phoenix and Line Islands, Finance, Tourism, Foreign Affairs, Commerce,
- The Office of the Attorney General
- Kiribati Police Service
- Atoll Research Centre of the University of the South Pacific

There were also other representatives from other government ministries besides those represented on the PMC invited to contribute in certain parts of the Plan

Secondly, the PIO produced the first draft of the Updated PIPA Management Plan based on inputs by the Ministries and then submitted to the PIPA Partners, New England Aquarium and Conservation International, for their inputs as well. Having incorporated the PIPA Partner's inputs, the first draft was presented to the Trust for their review before presenting to Cabinet for their review and endorsement.

It is important to note, the Conservation Agreement is used as the key guiding document in the preparation of the updated PIPA Management Plan. Section 3 of the Conservation Agreement requires Kiribati to submit to the PIPA Trust at least 90 days before the expiration of the current PIPA Management Plan (2011-2014) for its review and acceptance.

The updated PIPA Management Plan 2015-2020 is the outcome of the PMC meetings, workshops and consultations with the PIPA partners and other stakeholders. The term of this Plan is 5 years commencing January 2015 – January 2020 with options to extend beyond two 5 year period beyond that. This Plan will be reviewed late in 2019 and learning and issues arising will be incorporated into the new PIPA Management Plan.

**Acknowledgements.**

The Government of Kiribati is grateful to its partners and supporters, in particular New England Aquarium (NEAq) and Conservation International (CI), the PIPA Trust, government ministries, members of the PIPA Management Committee, NGOs and other individuals who have actively assisted in the preparation of this Plan. Though much of the information used in the Plan is more a repetition of the contents of the first PIPA Management Plan 2011-2014, there is a noted extension and expansion in scope as prompted by the full closure of the PIPA by 1st January 2015 and which all PIPA stakeholders have substantially contributed.

This Management Plan really embodies all our individual efforts and with which we should take pride in as we continue to sail together into the next five years and beyond to deliver our noble duty of protecting the entirety of the Phoenix Islands Protected Area.

To you all, *Kam bati n rabwa* for all your contributions and inputs which have allowed the completion of this PIPA Management Plan: 2015 - 2020.

**List of acronyms**

BEN	South Equatorial Current
BES	South equatorial branch of the South Equatorial Current
CBD	Convention on Biological Diversity
CEPF	Critical Ecosystem Partnership Fund
CI	Conservation International
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DWFN	Distant Water Fishing Nation
ECD	Environment and Conservation Division (MELAD)
EEZ	Exclusive Economic Zone
EN	Endangered IUCN Red List category
ENSO	El Niño-Southern Oscillation
FAD	Fish Aggregating Device
FFA	Forum Fisheries Agency
GCF	Global Conservation Fund of Conservation International
GEF	Global Environment Facility
GLISPA	Global Island Partnership
GoK	Government of Kiribati
IAS	Invasive alien species
IUCN	International Union for the Conservation of Nature
MDG	Millennium Development Goals
MELAD	Ministry of Environment, Lands & Agricultural Development
MFMRD	Ministry of Fisheries, Marine Resource and Development
MIC	Micronesians in Island Conservation
MOU	Memorandum of Understanding
MPA	Marine Protected Area
NEAq	New England Aquarium
NGO	Non Government Organisation
NZ	New Zealand
PB	Patrol Boat
PAS	Pacific Alliance for Sustainability
PCB	Polychlorinated Biphenyl
PIO	PIPA Implementation Office
PKA	PIPA Kanton Assistant
PMC	Phoenix Islands Protected Area Management Committee
PMC-Sub-Committees:	
- PBASC	PIPA Biosecurity Advisory Sub-Committee
- PSASC	PIPA Surveillance Advisory Sub-Committee
- PTASC	PIPA Tourism Advisory Sub-Committee
POP	Persistent Organic Pollutants
SAMTEC	The Space and Missile Test Centre
SOPAC	Secretariat of the Pacific Islands Applied Geoscience Commission
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
UK	United Kingdom
UNEP	United Nations Environment Programme
UNESCO	United Nations Education, Scientific and Cultural Organisation
UNFCC	United Nations Framework on Climate Change
USA	United States of America

USAF	United States Air Force
USP	University of the South Pacific
TBAP	Tuna and Billfish Assessment Programme
TIGHAR	The International Group for Historic Aircraft Recovery
VMS	Vessel Monitoring System
WCU	Wildlife Conservation Unit
WHC	World Heritage Convention
WSSD	World Summit on Sustainable Development
WWII	World War II
YCA	Yellow Crazy Ants

**CONTENTS**

	<b>Page No.</b>
<b>Foreword by President Anote Tong</b>	<b>1</b>
<b>Executive Summary</b>	<b>2</b>
<b>Management Plan Process and Review</b>	<b>3</b>
<b>Acknowledgements</b>	<b>4</b>
<b>List of Acronyms</b>	<b>5</b>
<b>CHAPTER 1. The Phoenix Islands Protected Area (PIPA)</b>	
<b>1.1 The Phoenix Islands Protected Area (PIPA)</b>	<b>9</b>
<b>1.2 PIPA Area Description</b>	<b>13</b>
<b>1.3 Legislative Authority and Purpose</b>	<b>14</b>
<b>1.4 Status of PIPA’s Natural and Heritage Values</b>	<b>14</b>
<b>1.5 PIPA’s Global Significance</b>	<b>16</b>
<b>1.6 Relevance to Kiribati Commitments under International Treaties and Conventions</b>	<b>18</b>
<b>CHAPTER 2. PIPA Human Uses, Threats, Issues and Challenges</b>	
<b>2.1 History, Development and Cultural Values</b>	<b>19</b>
<b>2.2 Fisheries Development</b>	<b>20</b>
<b>2.3 Existing Uses</b>	<b>21</b>
<b>2.4 PIPA Management Issues and Challenges</b>	<b>21</b>
<b>CHAPTER 3. PIPA Vision, Guiding Principles, Management Objectives and 2010-2014 Strategic Action Plan Framework Summary</b>	<b>27</b>
<b>CHAPTER 4. PIPA Strategic Action Plan 2010-2014</b>	<b>30</b>
<b><u>SAP 1. PIPA Core Management:</u></b>	<b>30</b>
• <b>SAP 1.1 GoK MELAD Minister and Cabinet</b>	<b>32</b>
• <b>SAP 1.2 PIPA Management Committee</b>	<b>32</b>
• <b>SAP 1.3 PIPA Managerial Operation</b>	<b>33</b>
• <b>SAP 1.4 PIPA Regulations, Licenses and Permits and Penalties</b>	<b>38</b>
• <b>SAP 1.5 PIPA Zonation</b>	<b>40</b>
• <b>SAP 1.6 PIPA Surveillance and Enforcement</b>	<b>42</b>
• <b>SAP1.7 PIPA World Heritage Listing</b>	<b>46</b>
• <b>SAP 1.8 PIPA Partnerships, Transboundary &amp; International Collaboration</b>	<b>47</b>
• <b>SAP 1.9 PIPA Information Management, Education and Outreach</b>	<b>49</b>
• <b>SAP 1.10 PIPA Science and Research</b>	<b>52</b>
• <b>SAP 1.11 PIPA Tourism</b>	<b>53</b>
• <b>SAP 1.12 PIPA Kanton Atoll Sustainable Resource Plan and Community Welfare</b>	<b>54</b>

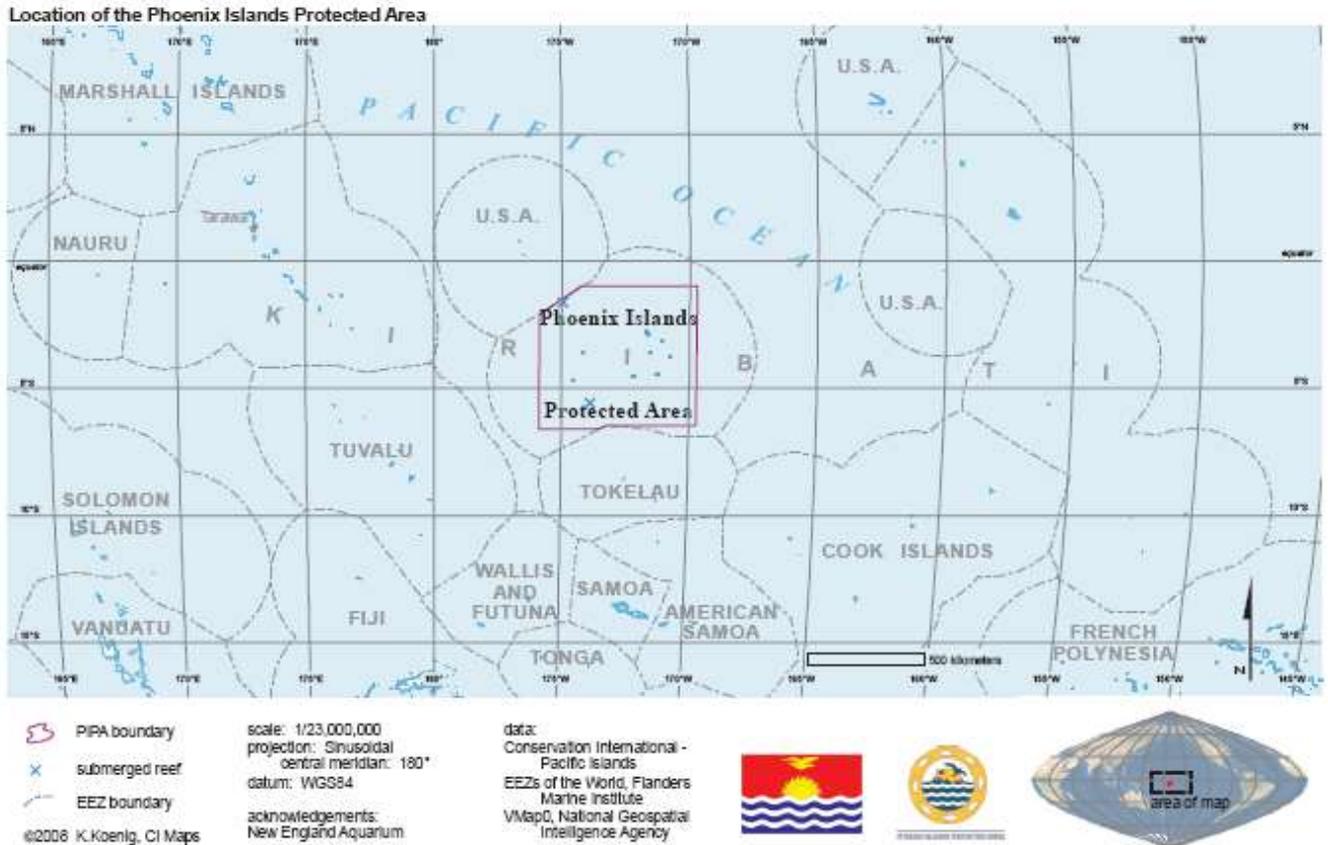
• SAP 1.13 PIPA Monitoring and Evaluation	55
• SAP 1.14 PIPA Sustainable Financing, Resourcing and Business Plan	57
• SAP 1.15 PIPA Annual Operational Work Plan & Report	58
<b><u>SAP 2. PIPA ‘Issues to Results’</u></b>	<b>59</b>
• SAP 2.1 PIPA Atoll & Reef Islands Restoration & Biosecurity	59
• SAP 2.2 PIPA Coral Reefs and Coastal Management	62
• SAP 2.3 PIPA Endangered and Threatened Species	64
• SAP 2.4 PIPA Offshore Fisheries	67
• SAP 2.5 PIPA Cultural and Historical Heritage	68
• SAP 2.6 PIPA Seamount & Deep Seas	69
• SAP 2.7 PIPA Climate Change	71
<b><u>SAP 3. State of PIPA Report 2019</u></b>	<b>76</b>
<b>References</b>	<b>78-79</b>
<b>Figures</b>	
1. The Phoenix Islands, Kiribati, Central Pacific	9
2. Phoenix Islands Protected Area Boundary Map	10
3. Phoenix Islands Protected Area in 3D	11
4. PIPA Zonation, 2015-2020	42
<b>Tables</b>	
1. PIPA Island Areas and Geographic Coordinates	13
2. Multi-agency Responsibilities, PIPA-MC	37
3.1 Past and Recommended Pest Mammal Eradication at PIPA	61
3.2 Possible Timetable and draft costs of PIPA IAS removals	61
4. List of Protected Birds	65
<b>Appendices</b>	
1. Environment (Amendment) Act 2007	80
2. PIPA Regulations (2008)	121
3. PIPA Permit Application	128
4. Booma Ibukin Kariaiakan Te Roko iaon aban PIPA	130
5. Kanton Community Agreement	132
6. PIPA Monitoring Key Indicators	133
7. IUCN Red List – Kiribati/PIPA	135

**CHAPTER 1. THE PHOENIX ISLANDS PROTECTED AREA (PIPA)**

**1.1 The Phoenix Islands Protected Area (PIPA)**

The Phoenix Islands Protected Area (PIPA) is centered on a group of islands, the Phoenix Islands, in the geographic center of the Republic of Kiribati in the Central Pacific Ocean (Figure 1). These islands are also known as the Rawaki Islands (Government of Kiribati, 1979).

**Figure 1. The Phoenix Islands, Kiribati, Central Pacific.**



The Phoenix Island group is situated between the Gilbert Islands to the west and the Line Islands to the east, extending across the centre of Kiribati. Two of the Phoenix Islands, Howland and Baker, are low reef islands in the adjacent territory of the United States to the north of Kiribati.

PIPA’s boundaries encompass about 407,112 sq km including 8 atoll/reef islands, two submerged reefs and at least 14 identified seamounts and their surrounding mainly deep water marine area. PIPA constitutes 11.63% of Kiribati’s Exclusive Economic Zone (EEZ) and is one of the largest Marine Protected Area (MPA) in the world, first declared by the Government of Kiribati in 2006 and extended in February 2008.

The islands within the boundary of PIPA are (see Figure 2): Kanton (Abariringa /Canton) Birnie, Enderbury, Manra (Sydney), McKean, Nikumaroro (Gardner), Orona (Hull), and Rawaki (Phoenix). Two submerged reefs, Winslow and Caroudelet, and at least 14 known seamounts together with openocean and deep sea habitat are an integral part of PIPA (Figure 3). These atolls and low reef islands are surrounded by some of the most pristine coral reefs in the world. The waters are teeming with fish in quantities rarely seen elsewhere and tens of thousands of seabirds find refuge on the atolls.

**Figure 2. Phoenix Islands Protected Area Boundary Map**

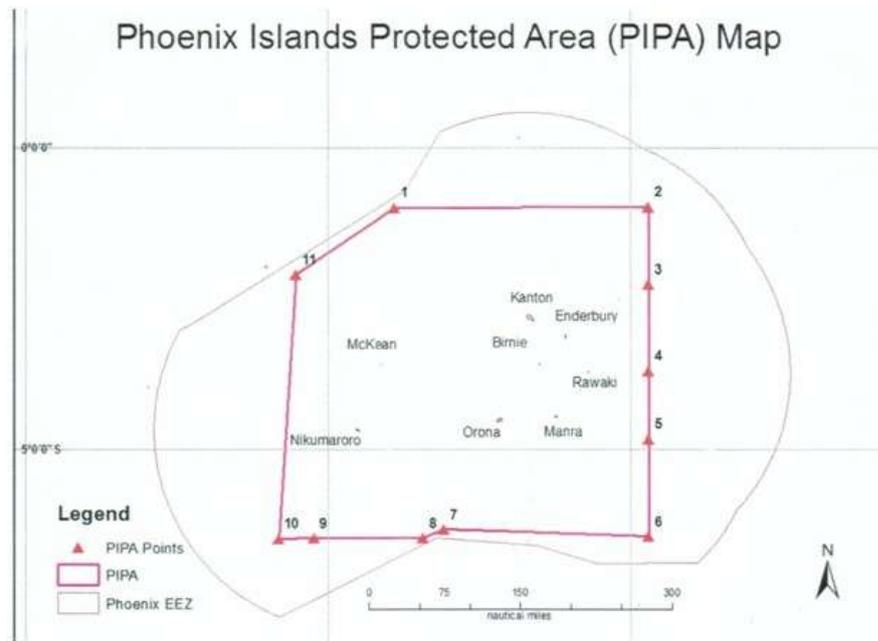
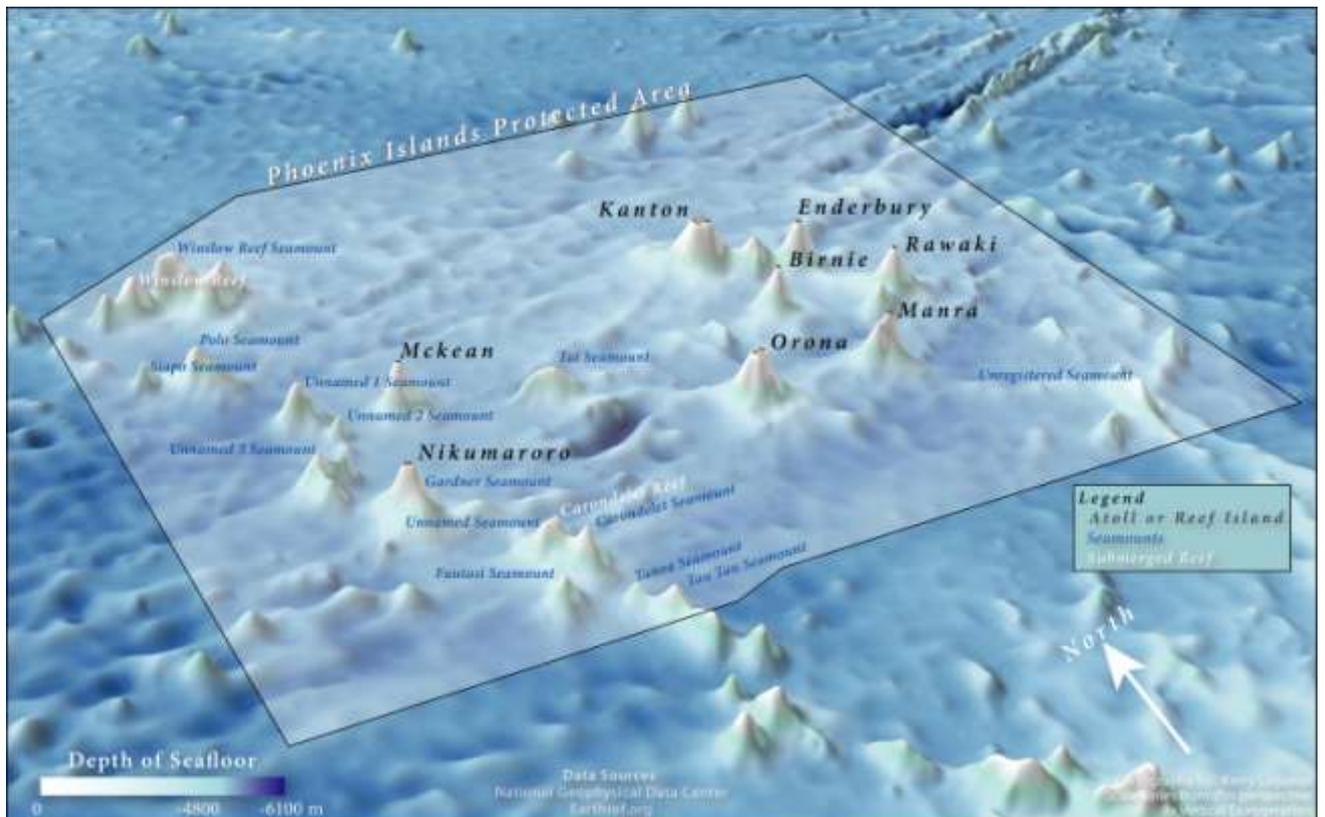


Figure 3. Phoenix Islands Protected Area in 3D



The 8 atolls and low reef islands and the two submerged reefs of PIPA represent only the highest of numerous large and long-extinct volcanoes. An even larger number of large volcanoes do not reach to within 200 metres of the surface and are therefore technically classified as seamounts. Several of PIPA’s seamount volcanoes have been studied bathymetrically and formally named and entered into

the Seamount Catalogue, including the Carondelet and Winslow seamounts (near their namesake submerged reefs), the Fautasi, Siapo, Polo, Tai, Tanoa, Tau Tau, Gardner. There remain at least four unnamed seamounts.

### Meteorology

PIPA is located in the Pacific equatorial dry zone that experiences droughts and periods of heavy rainfall. During El Niño periods the Phoenix Islands may experience high rainfall. However, overall the rainfall in the Phoenix Islands is among the lowest in the Central Pacific. Most of the Phoenix Islands receive less than 1,000 millimetres (mm) of rain annually with a dry period from March through June. The northern most islands in the Phoenix are the driest, i.e. Kanton and Enderbury. Birnie, Rawaki, Nikumaroro and McKean are wetter. Orona and Manra are the wettest.

Air temperature ranges from 21.7° to 36.7°C with an average 28.9°C. Relative humidity ranges from 57 to 85 percent.

The Phoenix Islands lie between the Intertropical Convergence Zone and the South Pacific Convergence Zone. The former remains relatively stationary during the year over the central Pacific Ocean; however, the South Pacific convergence zone moves north from January to July.

Between 5°N to 5°S particularly in the central Pacific Ocean (where the Phoenix Islands are located), there is persistent high pressure preventing the development of tropical cyclones (hurricanes).

The meteorological conditions have a significant influence on pelagic fish stocks in the region, including stocks in the Phoenix Islands. During El Niño - Southern Oscillation (ENSO) events this warm water pool shifts to the east and skipjack tuna populations also shift to the east extending to the Phoenix Islands. The Phoenix Islands region appears to be the centre of El Niño activities in the Pacific so may be ideal for studying the El Niño phenomenon and more generally in relation to climate change.

### Geology

There has been little study of geology of the atolls and seamounts in PIPA but based on what is known from Howland and Baker, the US islands within the Phoenix Group, some extrapolations can be made for the origins and geological history of PIPA. The Line and Tokelau ridges (PIPA is located across the Tokelau ridge) lie within the Darwin Rise, on a magnetically “quiet” seafloor formed during the Cretaceous Normal Superchron (120–83 Ma). The seafloor underlying the northern part of the Tokelau ridge is dated between 120.4 and 131.9 Ma (Early Cretaceous).

Atoll and reef island development began when the volcanic foundations were still emergent islands in the Cretaceous to Eocene periods, followed by subsidence being offset by upward reef growth maintaining proximity to the sea surface over long time periods. Darwin has been reported to have used some of the Phoenix Islands as a basis for development of his theory of coral reef and atoll development.

Several bathymetric surveys have been completed in the Phoenix Islands. Seabed surface composition was primarily calcareous ooze, siliceous-calcareous clay, and brown clay. The substrate of the Phoenix Islands is almost entirely limestone with accumulated organic matter.

The Phoenix Islands reflect a geological sequence of globally significant mid-oceanic archipelagos, capturing a diversity of forms and developmental stages of ancient atolls, low reef islands, submerged reefs and seamounts, recording in their rock strata the formation of the world’s largest biogenic structures (atolls and reef islands) over the past 10 to 80 million years. These formations collectively

contain one of the world's most ancient and largest pristine atoll archipelagos, which in turn contribute essential habitat for coral communities, benthic algae communities, giant clam beds, intact atoll forests and intact atoll dry scrubs.

#### *Bathymetry and Seamounts*

PIPA has a huge bathymetric range with waters reaching to maximum of 6,147 meters depth with the main seafloor averaging around 4,500 metres below the ocean surface. Additional to the ancient volcanoes that reach or approach the surface, bathymetry reveals a series of topographic features which are interpreted to also be volcanoes which technically qualify as 'seamounts' – 'submerged mountains with a height of more than 1,000 metres above the sea floor but whose peak lies below the photic zone'.

#### *Oceanography*

Sea surface temperatures within PIPA are normally between 28-30°C. There is no significant thermocline down to 50 m depth. Sea level observations on Kanton show regular four-day oscillations related to equatorial waves. Oceanographic studies reveal that silicate and phosphate levels in the waters around the Phoenix Islands are elevated compared to adjacent waters. This may be a result of upwelling and have high importance for the pelagic food chain in the region.

The Phoenix Islands are adjacent to the equator and are predominantly influenced by the westward-flowing Equatorial Current (northern equatorial branch of the South Equatorial Current (BEN) and south equatorial branch of the South Equatorial Current (BES) (TBAP 1993). Offshore currents are generally westward. The strength of the currents varies with the wind. Usual current speed is 1.9 km per hour (1 knot), with a maximum of 3.7 km per hour (2 knots).

The Phoenix Islands are subject to the ENSO that occurs every two to seven years and lasts for 18 to 24 months. During ENSO events, the westward trade winds are reduced and the main water currents experience variations and even reversal. This deepens the eastern Pacific thermocline. More specifically, the Phoenix Islands are located within the region of the Central Pacific in which a warm pool of surface water develops at the onset of El Niño phases, and can experience persistent hotspots lasting 1 year or more, as occurred in 2002-3. This unique environment of high exposure to warm water pools may exert unusual selective pressures on marine organisms relevant to climate change adaptation, discussed further in later sections.

The Phoenix Islands are also in an area of unique subsurface water currents. This may have great significance for dispersing larvae originating from the Phoenix Islands.

#### *Human Occupation*

The Phoenix group islands have no permanent inhabitants, although most islands have a recent cultural history extending over the past 150 years. The one currently inhabited atoll, Kanton, has a non-permanent population of approximately 40 people comprising government employees and their families engaged in protection and management of Kiribati interests in the region.

### **1.2 PIPA Area Description**

PIPA is the world's first large, truly deep water, mid-ocean marine protected area. Whilst the greater part by area of PIPA comprises mainly ocean floor with a water column averaging more than 4,000 metres, an important feature of the marine environment is the abundance of large extinct underwater volcanoes. These underwater mountains contribute to a huge diversity of marine habitat types - atoll, low reef island, submerged reef, seamount and deep seabed as well as open ocean habitats. It can also be described as an underwater 'mountain-scape' with the highest peaks of the volcanic mountains,

some rising more than 5,000 metres above the adjacent seabed, the highest reaching almost to the surface forming atolls, reef islands, and just below the surface shallow submerged reefs.

Total marine area: c. 408, 224.49 km<sup>2</sup>

Total land area: c. 25.51 km<sup>2</sup>

Total designated area: **407,112 km<sup>2</sup>**

**Table 1. PIPA Island Areas & Geographic Coordinates**

<b>Island &amp; Geographic Coordinates</b>	<b>Total area (ha)</b>	<b>Land area (ha)</b>
Manra: 4°26.2'S to 4°28.0'S; 171°13.6'W to 171°15.9'W	-	c.500
Rawaki: 3°43.0'S to 3°43.6'S 170°42.5'W to 170°43.0'W	73.24	58.14
Enderbury: 3°6.3'S to 3°8.9'S; 171°4.7'W to 171°5.7'W	596.6	500+
Birnie: 3°34.8'S to 3°35.4'S; 171°30.7'W to 171°31.2'W	50.95	48.2
Kanton: 2°46.2'S to 2°52.2'S; 171°37.4'W to 171°43.4'W	-	c.900
McKean: 3°35.5'S to 3°36.1'S; 174°7.2'W to 174°7.6'W	74.32	48.77
Orona: 4°29.0'S to 4°32.3'S; 172°8.1'W to 172°13.1'W	-	c.600
Nikumaroro: 4°39.2'S to 4°41.8'S; 174°29.8'W to 174°32.8'W	-	c.400

(From Pierce et al 2006)

Because the islands are small with large reef flat areas, they tend to change size depending on the weather and time, hence the approximate sizes. Areas of islands are still not formally surveyed and most recent hand-held GPS surveys by Ray Pierce et al in 2008 suggest smaller than above calculations in the table, i.e. Rawaki was calculated in 2008 to be 66 ha and McKean 32 ha incl. lagoons, the latter of which were 15.3 and 11.2 ha respectively. Birnie is probably also smaller than all the previous calculations suggest.

### 1.3 Legislative Authority and Purpose

PIPA is established under the Phoenix Islands Protected Area Regulations 2008 (Appendix 3), which were duly promulgated pursuant to sections 43(1) and 86(1) of the Environment Act (1999) as amended by the Environment (Amendment) Act 2007 PIPA is established with a total area 407,112 sq km (Figure 2), inclusive of all island and marine habitats therein.

The Phoenix Islands Protected Area is the Government of Kiribati's (GoK) conservation and sustainable use strategy for the Phoenix Islands and surrounding marine environment. The PIPA Management Plan is developed in accordance with its World Heritage Listing as a natural site and to further Kiribati's obligations to the World Heritage Convention. PIPA is managed as a Wilderness Area (International Union for the Conservation of Nature (IUCN) Category 1b).

PIPA management measures are vested in the PIPA Regulations 2008, the Environment Act, and the PIPA Management Plan (refer SAP 1.4. Regulations, Licenses and Permits and Penalties). Research and recreational activities to take place in PIPA will require the PIPA Permit or Environment License

In January 1, 2015, the entire PIPA will become a no-take-zone therefore no extraction activity is allowed with the exception of designated artisanal fishing zones for the Kanton community.

#### **1.4 Status of PIPA's Natural and Heritage Values**

The marine environment of the PIPA is extremely diverse. It varies from the spectacular turquoise lagoons with huge coral heads and clams to pristine and colourful coral reefs that form and surround the atolls, low reef islands and submerged reefs down the slopes of the massive volcanoes to the ocean floor to over 6,000 meters deep. The marine environment of the PIPA is known to support a number of globally endangered and endemic species and hosts interesting and unique species assemblages not found elsewhere in the world.

From a marine science perspective the PIPA is extremely important because of the minimal human impacts and hence it's nearly pristine state. In addition PIPA is uniquely situated biogeographically in the centre of the equatorial Pacific. PIPA is believed to play a significant role in movements and dispersal of marine animals and larvae. Little is still known about the full effect of these islands on the surrounding pelagic marine species and systems, which in turn support internationally important seabird populations and numerous migratory birds. [Ray to comment]

A full description of habitats, species and ecosystems within PIPA is given in the PIPA World heritage Nomination Dossier (Government of Kiribati, 2009). In summary terms the condition of the PIPA's natural values, the following is provided.

- (1) Pristine coral reefs with natural populations of higher predators (sharks, large fish) – Coral reefs are near- pristine. Coral reefs were impacted by bleaching events in 2002, 2004, but appeared to have been slowly recovered as observed during the 2009 research expedition Another bleaching event again occurred in 2010 but, again signs of coral recovery was observed during the 2012 research survey. These bleaching events did not appear to impact fish populations or diversity, in particular at the windward site Since human impacts are basically nil in the Phoenix Islands, coral recovery appeared to be much quicker than in more stressed environments that are heavily influenced by anthropogenic factors.
- (2) Highest regional diversity of corals and fishes – Corals and fishes species are highly diverse. Coral reefs were impacted by bleaching events in 2002, 2004, and 2010 but are recovering.
- (3) Endemic species of corals and fish – Endemic species of corals and fish exist in the Phoenix Islands.
- (4) Spectacular lagoon coral and giant clam communities (Kanton and Orona) – Lagoon corals were impacted by bleaching events in 2002, 2004 and 2010, but are recovering. Spectacular lagoon giant clam communities exist.
- (5) Important marine turtle nesting beaches (Enderbury and Kanton) and breeding/feeding sites – The Phoenix Islands is an important nesting area for marine turtles. It has been speculated that the decline in sea turtle populations during the early years after PIPA was declared a marine protected area may be attributable to the illegal shark fishing operations. However, with strict measures applied on illegal fishing within the 12 miles territorial sea, shark population has recovered and to other marine species including turtles.

- (6) Significant coconut crab populations on Nikumaroro – Coconut crabs exist on several of the Phoenix Islands, but are most abundant on Nikumaroro Island. In the past, coconut crabs have been harvested, but with the declaration of PIPA, harvest has been banned. This has resulted in coconut crab populations once again flourishing on Nikumaroro.
- (7) Traditional Kiribati medicinal plants now rare in the Gilbert Islands, still exist in the Phoenix Islands – There are several species of plants that are used for traditional Kiribati medicines. With population increases, land clearing, and urbanization of the Gilbert Islands, especially Tarawa, these plants are quickly disappearing. Several of these plants still exist in the Phoenix Islands. As such, PIPA can serve as the genetic depository for these important traditional medicinal plants.
- (8) Tuna spawning ground reported for skipjack tuna. Skipjack tuna larvae caught in plankton net tows in PIPA by Japanese scientists on several scientific expeditions indicated that PIPA is another important spawning site for skipjack tuna beside the Philippines. The presence of seamounts causing upwelling may contribute in providing the needed nutrients and feed thus supporting tuna larval development including other pelagic marine species.
- (9). Important seabird colonies especially for greater/lesser frigate birds, terns, boobies, tropicbirds and petrels, including the threatened Phoenix petrel and white-throated storm-petrel. Rawaki has the greatest seabird diversity, but McKean and Enderbury are also very important and populations on these and the other islands will recover after pest removal. The eradication of rabbits on Rawaki and rats in McKean in 2008 was very successful. With these two islands free of pests, the bird population including the atoll ecosystem was greatly improved. In 2011, pest eradication on Birnie was a success except on Enderbury which needs to be revised again. The endangered birds species, the Phoenix petrel and the White-throated petrel are both found on these islands. It is crucial they are preserved and protected with sign “No-Landing” signage established around the islands. Other PIPA islands could be repopulated with birds from Rawaki and McKean. All islands are important non-breeding habitat for the bristle-thighed curlew (Vulnerable).
- (10) High isolation in the Central Pacific makes these islands unique and critical stepping-stone habitats for migratory, pelagic and planktonic species – There are no islands in close proximity to the Phoenix Islands. The oceanographic conditions are unique and the area is rich in plankton. This was the foundation for the sperm whale populations that were hunted in the early 1800s. It is also the foundation for economically important pelagic tuna fishery. At the same time, this isolation means that species in the PIPA are particularly vulnerable to overharvesting and that recovery of depressed populations will not likely benefit from in-migration of larvae and adults from elsewhere.
- (11) The Phoenix Islands include a large number of unexplored seamounts that form part of the Tokelau seamount chain which undoubtedly support unique marine communities – Seamounts are known to have a high level of endemism and often contain high percentages of species that are new to science. Seamount ecosystems are of very

special interest for conservation. Numerous seamounts have been identified in the Phoenix Islands area. . A deep sea survey will be conducted in 2016.

Unique cultural history reflecting ancient Polynesian and Micronesian exploration and settlement of the Pacific, 19<sup>th</sup> century whaling, guano discovery and extraction, aviation history, resettlement, role in WWII, the cold war, and space exploration – The history of the Phoenix Islands extremely diverse and spans centuries (see Chapter 2?-check).

## 1.5 PIPA's Global Significance

PIPA is the world's first large, truly deep water, mid-ocean marine protected area. As a vast expanse of largely pristine mid-ocean environment, replete with a suite of largely intact uninhabited atolls, truly an oceanic wilderness, the PIPA, one of the largest marine protected areas in the world (407,112 sq km), is globally exceptional and as such is a superlative natural phenomenon of global importance.

A feature of the marine environment of PIPA is an outstanding collection of large submerged volcanoes, presumed extinct, rising direct from the extensive deep seafloor with an average depth of more than 4,500 metres and a maximum depth of over 6,000 metres. Included in the collection of large volcanoes are no less than 14 recognised seamounts, submerged mountains that don't penetrate to the surface. The collection of atolls represents coral reef cappings on 8 other volcanic mountains that approach the surface.

These underwater mountains contribute a huge diversity of marine habitat types - atoll, low reef island, submerged reef, seamount and deep seabed as well as open ocean habitats. It can also be described as an underwater 'mountain-scape' with the highest peaks of the volcanic mountains, some rising more than 5,000 metres above the adjacent seabed, the highest reaching almost to the surface forming atolls, reef islands and, just below the surface, shallow submerged reefs.

The large bathymetric range of the submerged seamount landscape provides depth defined habitat types fully representative of the mid oceanic biota. The widely recognized local endemism and distinctive species assemblages associated with seamounts generally, specifically demonstrable in PIPA, is evidence of on-going *in situ* evolution of marine ecosystems and communities of plants and animals.

PIPA is of crucial scientific importance in identifying and monitoring the processes of sea level change, assessing growth rates and age of reefs and reef builders (both geologically and historically), and evaluating absolute and relative effects from climate change. The reef systems are so remote and exhibit such near pristine conditions that PIPA can serve as a benchmark for understanding and potentially restoring other degraded hard coral ecosystems in Kiribati and elsewhere in the Pacific. The islands are acknowledged as critical sites for ongoing study of global climate change and sea-level events in that they are located in a region less affected by other anthropogenic stresses. Because of the relative absence of anthropogenic influences these oceanic Central Pacific islands are also unique natural laboratories for understanding the growth of reefs, the evolutionary process of reef systems, biological behavioural studies, recruitment processes in isolation, size classes and population dynamics of marine organism groups and reef species diversity studies.

As a known breeding site for numerous nomadic, migratory and pelagic marine and terrestrial species, PIPA makes a significant contribution to the understanding of on-going ecological and biological processes in the evolution and development of global marine ecosystems and communities of plants and animals.

Due to its great isolation, PIPA occupies a unique position in the biogeography of the Pacific as a critical stepping stone habitat for migratory and pelagic/planktonic species and for ocean currents in the region. PIPA embraces a range of associated marine environments that display high levels of marine abundance as well as the full spectrum of age and size cohorts, increasingly rare in the tropics, and especially in the case of apex predator fish, sea turtles, sea birds, corals, giant clams, and coconut crabs, most which have been depleted elsewhere. The overall marine tropic dynamics for these island communities across this archipelago are better functioning (relatively intact) compared with other island systems where human habitation and exploitation has significantly altered the environment.

PIPA provides important natural habitats for in-situ conservation of globally important oceanic biological diversity, both marine and terrestrial. It is the most important secure habitat of the local endemic and now endangered Phoenix petrel and serves as crucial breeding and resting area for a number of migratory birds. PIPA collectively provides very important habitat for the continued existence of a number of globally endangered species (e.g. Napoleon wrasse, hawksbill turtle), vulnerable species (e.g. white-throated storm petrel, bristle-thighed curlew, green turtle, giant clam, bumblehead parrotfish) and numerous others globally depleted species, both marine and terrestrial, including for example apex predators such as sharks. It also provides opportunities for biota to recolonise other central Pacific habitat as it becomes restored.

The remoteness of the area and absence of permanent human settlement provides a unique opportunity for a high standard of habitat protection for species and ecosystems of global importance to science and conservation, from atoll to deep sea and the open ocean.

### **1.6 Relevance to Kiribati Commitments under International Treaties and Conventions.**

The PIPA represents an unprecedented commitment by a Small Island Developing State to meet many of its international commitments under the conventions listed below. Protecting the PIPA ecosystems and species from anthropogenic damage while managing them for sustainability provides an opportunity to show how conservation and sustainable development are mutually supportive and may be carried out in other places. Information on ecosystems, species and economic sustainability from PIPA, reported through these conventions, can be used as benchmarks for other countries in measuring and targeting commitments under the conventions.

**World Heritage Convention (WHC).** Kiribati became a party to the WHC in December 2000. PIPA was submitted to the WHC for listing as a natural site in January 2009 and inscribed as a natural site in August 2010.

**Convention on Biological Diversity (CBD).** Kiribati became party to the CBD in August 1994. The three objectives of the CBD, to conserve biodiversity, promote sustainable use and ensure equitable access to resources. These are core principles of PIPA.

**Ramsar Convention on Wetlands.** The shallow coral reefs, lagoons and brackish wetland systems in the Phoenix Islands fall under the convention description of wetlands and could be listed as a site under Ramsar.

**United Nations Framework Convention on Climate Change (UNFCCC).** Kiribati ratified the UNFCCC in February 1995, and is one of the most vulnerable of all countries to climate change impacts, as a result of sea level rise and impacts to freshwater and groundwater resources. As a natural Climate Change Research Laboratory, PIPA can help Kiribati and the world understand climate change impacts to atolls, and research in PIPA can be of global significance/

World Summit on Sustainable Development (WSSD). Kiribati was party to drawing up the Millennium Development Goals (MDGs) under the WSSD. PIPA helps Kiribati in meeting the MDGs, particularly MDG 8, on environment and sustainability.

## CHAPTER 2 HUMAN USES OF PIPA – ISSUES AND CHALLENGES

### 2.1 History, Development and Cultural Values

The Phoenix Islands were inhabited by Polynesian settlers between approximately AD 950 to 1500. They left stone building foundations that resembled marae from eastern Polynesia. In addition to building foundations, ancient stone weirs and fish traps were also discovered on some of the Phoenix Islands. It was speculated that the Phoenix Islands were abandoned because of droughts. Evidence was also found that suggested the Phoenix Islands were visited by Caroline Islanders (Micronesians). Most archaeological structures were found on Orona and Manra.

Western discovery of the Phoenix Islands began in earnest with the expansion of the American whale fleet into the Pacific in the early 1800s and focused on sperm whales. Many of the Phoenix Islands were ‘discovered’ by American or British whalers. It was not until the U.S. Exploring Expedition of 1838 to 1842 that the exact position of many of the Phoenix Islands was determined.

In the mid-1800s guano became an important agricultural commodity worldwide. The 1856 U.S. Guano Act allowed American citizens to claim previously unclaimed and uninhabited islands for guano extraction. Most of the Phoenix Islands were claimed and registered under this act. Guano was extracted from many of the Phoenix Islands. After major deposits had been depleted, effort focused on transforming the Phoenix Islands into coconut plantations. Coconut trees were planted, but many died due to drought conditions. Title to the Phoenix Islands was transferred between various companies in the early 1900s. With the Kingsford-Smith pioneering trans-Pacific flights in 1928 and 1934, the USA and UK began competing for a mid-Pacific refueling stop. Amelia Earhart was lost at sea in 1937 and may have landed on Nikumaroro. Later that year, a solar eclipse centered in the Phoenix Islands was studied by teams from the USA and NZ. In 1938, UK began resettlement of Manra, Nikumaroro, and Orona with people from the Gilbert Islands which were considered over-populated. In 1939, Kanton and Enderbury were placed under the joint administration of the UK and USA. This allowed for construction of airport facilities on Kanton that same year.

The outbreak of WWII resulted in isolation for the settlements in the Phoenix Islands. Kanton became a center of military activities, with the U.S. military development of three air strips, and one seaplane landing area within the lagoon. Kanton was a critical link to ferrying military equipment from the USA to NZ and Australia during WWII. Kanton was bombed by the Japanese on three occasions.

After WWII, Kanton airport facilities were turned over to U.S. civilian control. Up to four different airline companies used this facility until the late 1950s, when jet aircraft began flying non-stop between Hawaii and Fiji. Droughts hit the Phoenix Islands causing abandonment of the Manra colony in the mid-1950s. Inhabitants of Orona and Nikumaroro were resettled in the Solomon Islands in the early 1960s and the United States of America Air force (USAF) set up a space vehicle tracking station on Kanton. This was later converted to a satellite tracking station, then to a Space And Missile Test Center (SAMTEC). SAMTEC closed in 1976 and in 1979 a Treaty of Friendship was signed between the USA and GoK in which the USA gave up its claims to Kanton and Enderbury.

After Kiribati independence in 1979, GoK declared a 200 nautical mile Exclusive Economic Zone (EEZ) around the Phoenix Islands. Various schemes were attempted to resettle the Phoenix Islands including the Kakai scheme on Orona in 2001. Key economic activities such as copra, bech-de-mer, and sharkfin harvest were undertaken. However, the scheme was neither successful nor sustainable and was closed in 2004. In the 2000s, NEAq began periodic visits to the Phoenix Islands to document conditions on these islands. An outcome of the NEAq studies was the 2006 GoK declaration of PIPA.

Today about 3-40 people live on Kanton as caretakers on behalf of the GoK, which also serves as a port of entry for Kiribati.

In summary, a number of identified cultural and historical values that PIPA has include:

- Archaeological evidence, including walled structures, is evidence of early colonization by both Micronesians and Polynesians, providing an important cultural link and an example of island voyaging over time and the limits to which human settlement can extend – even into modern times. The Phoenix Islands could be considered an overlap area of these two important Pacific Islands peoples.
- The island Nikumaroro was named by Gilbertese settlers in 1937 in honour of the island of Nikumaroro, in the south of the Gilbert Group, from which the famous Gilbertese ancestress Nei Manganibuka came, bringing with her the traditional lore of deep-sea navigation and the first *buka* tree.
- Nikumaroro is possibly the site of the crash landing of Amelia Earhart on her failed trans-Pacific flight in 1937. Remains of a well-documented World War II crash also exist on the island of Manra.
- Several islands in the group hold archaeological remains of settlements, guano mining and whaling/transiting ships from the 19th and early 20<sup>th</sup> centuries.
- Archaeological remains of the 20th century world include British and United States military bases from the Second World War, the airfield markers and base for the Trans-Pacific Pan-Am Clipper seaplane flights of the mid 1940-50s, and the United States missile testing base SAMTEC.

## **2.2 Fisheries Development**

### Offshore Fisheries

Interest in offshore fisheries resources (tuna) around the Phoenix Islands began after WWII, stimulated by Hawaiian fishing interests. Fisheries research indicated that juvenile skipjack were available in the Phoenix Islands, indicating that this area was a skipjack spawning area. In the 1980s tuna tagging studies were initiated. Results indicated that these species migrate large distances during their lifetimes, including ranging through the waters of the Phoenix Islands.

The offshore fisheries (tuna) were active prior to Kiribati independence in 1979. GoK control over its waters was established in 1979 when the 200 nautical mile EEZ was declared. In 1987, the USA and certain Pacific Island states entered into a Multilateral Treaty on Fisheries. This allowed US purse seiners to operate in Kiribati waters (including the Phoenix Islands). Effort (days fishing) and landings data for longline, pole and line, and purse seine vessels for vessels fishing in the Kiribati EEZ (including the Phoenix Islands) has been published for each of the DWFN fleets. Data indicate that periodically during certain years the Kiribati EEZ around the Phoenix Islands is a significant source of tuna. Apparently during periods of El Niño, sea surface temperatures increase in the Phoenix Islands along with skipjack landings.

There is increasing concern on the sustainability of tuna fisheries in the Pacific Islands region. The Government of Kiribati, as party to the Nauru Agreement, has instituted measures to restrict effort in Kiribati waters, e.g. restrictions on the use of fish aggregation devices and purse seine exclusion zones. These measures apply to PIPA, contributing to PIPA's role as an MPA used to conserve tuna. There is evidence of tuna spawning grounds in PIPA and further research is needed to better understand the significance of these spawning grounds. Kiribati has also agreed to a 'reverse fishing license' concept whereby compensation will be paid to the government for lost DFWN revenues in return for increased conservation and protection of pelagic resources, submerged reefs, and seamounts in PIPA, achieved through expanded DWFN area closures. This concept has been agreed to be phased

in. The first PIPA Management Plan (2011-2014) uses a zonation approach whereby certain areas are delineated within the PIPA boundary and will be specified with respect to permissible and prohibited uses or activities. In this Plan, the entire PIPA area is fully protected from any form of extraction activity with the exception of the designated artisanal fishing zones in Kanton supporting the community on the island. As a known tuna spawning ground, PIPA's full closure from fishing activities may improve the tuna stock to the neighbouring waters and beyond.

### *Inshore Fisheries*

Exploitation of the inshore fisheries on the Phoenix Islands has been limited by virtue of the isolation of the islands and their limited human populations. After WWII and prior to the collapse of commercial airline connection on Kanton in the late 1950s, there were up to three fishing companies exporting fish to Hawaii. They made use of the commercial airline connections through Kanton. Most recent fishing has been for subsistence needs only for the local Kanton community. In the early 2000s, shark fishing by a DWFN vessel on several Phoenix Islands and by Kakai scheme participants on Orona resulted in the massive depletion of sharks on several Phoenix Islands. There was speculation that these shark fishing efforts may have also reduced turtle populations there when PIPA was first declared a marine protected area.

Surveys led by NEAq have determined that coral reefs and inshore fisheries are extremely robust and constitute spectacular examples of these globally important habitats and species. In the first Plan's Phase 1 or Baseline Zonation, seven of the atolls are designated as full "no take" zones out to 12 nautical miles around each reef system. On Kanton subsistence fishing is permitted to meet the needs of the local caretaker population.

## **2.3 Existing Uses**

At this time, all of the Phoenix Islands are uninhabited except for Kanton. There are GoK employees on Kanton in a caretaker capacity.. Recent newcomers to Kanton include the PIPA Kanton Coordinator and the PIPA Kanton Assistant with their small families. Total population is about 45.

The Phoenix Islands are periodically visited by ocean going yachts and by special boat charters for recreational divers and various researchers and ecologists. Immigration clearance is by the customs officer on Kanton. In addition, inter-island boats that service Tarawa and Kiritimati periodically re-supply the residents of Kanton and the GoK patrol vessel visits the Phoenix Islands at least annually.

As noted above, wildlife sanctuaries, closed areas, and prohibited areas have been previously established on a number of the PIPA islands, including Rawaki (Phoenix), McKean, and Birnie.

The Phoenix Islands Protected Area was declared in 2006, subsequently enlarged and legally gazetted by the GoK in early 2008. PIPA is the 'current use' of the Phoenix Islands and embodies Kiribati's conservation and sustainable resource use aspirations of this component of its territory. The PIPA Regulations 2008 provide the full mandate for Kiribati to manage all uses and interests across all sectors for these islands.

## **2.4 PIPA Management Issues and Challenges**

Detailed descriptions and documentation on environmental issues related to the Phoenix Islands are provided in Uwate and Teroroko (2007a) and in the PIPA World Heritage Convention (WHC) Nomination dossier (2009). Environmental issues and challenges include the following.

- Conservation of Natural Heritage and Biodiversity - The Phoenix Islands was identified as a key biodiversity area within the Polynesia/Micronesia Biodiversity

Hotspot Program under CI's Critical Ecosystem Partnership Fund (CEPF) (Atherton, 2008). This designation reflects the diversity, abundance and in some cases threatened species status of seabirds found in these islands. Coral reef and associated biota have now been well documented and contain populations of globally important and threatened species and are superb examples of intact coral reef ecosystems. Maintenance, and in some cases restoration, of biodiversity values are a key challenge for PIPA's management.

- Recovery of Endangered and Threatened Species – Endangered species listings that relate to the Phoenix Islands include (1) the IUCN Red List of Threatened Species that lists endangered species is for Kiribati, and (2) the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) appendices for Kiribati. These lists are updated regularly by Environment and Conservation Division of MELAD (ECD) nationally, and the lists for the Phoenix Islands are integrated into these. The Red List and CITES lists for Kiribati are provided in the Appendices. Of particular interest are sperm whales. In the early 19<sup>th</sup> century the American whaling fleet flourished in the Pacific and many thousands of sperm whales were taken from Phoenix Islands waters. During more recent expeditions to the Phoenix Islands no sperm whales have been observed
- Atoll restoration, Biosecurity and Invasive Species Management – A number of species have been accidentally or deliberately introduced to the Phoenix Islands, some having caused significant environmental damage to the local flora and fauna. A significant ongoing challenge and investment for PIPA is in the eradications of invasive alien species and prevention of any new introductions. In 2008, rabbits (*Oryctolagus cuniculus*) were eradicated on Rawaki and rats (*Rattus tanezumi*), from McKean and both eradications were successful. In 2011, the eradication of rats was conducted in Birnie and Enderbury. Work on Birnie was successful but failed in Enderbury. There are plans to revisit Enderbury and to conduct pest eradication on the rest of the PIPA during the plan period. The PIPA Biosecurity guidelines prepared by EcoOceania Pty Ltd has been a very useful document used to PIPA visitors to ensure no pests are introduced.

Illegal and Overfishing - Inshore fisheries of the Phoenix Islands are vulnerable to over fishing. In the early 2000s, a shark fishing vessel operated in several of the Phoenix Islands. After one illegal visit by one vessel, shark populations were fished in one atoll to near-zero levels. It was speculated that this one vessel also reduced turtle populations in the islands visited. Currently seven of the eight atoll/reef islands are no take zones and a sustainable resource use plan will be developed for the remaining atoll, Kanton. Recently, there has been cases where foreign fishing boats were found fishing within PIPA's territorial waters but all have been dealt with in the court and that fines are paid directly to the Government treasury.

- Illegal and Overfishing – Off shore fisheries of the Phoenix Islands are focused on tuna. GoK is party to a range of fisheries agreements but has limited capacity for surveillance, enforcement and management. Despite this the recent agreements under the 3<sup>rd</sup> Arrangement to the Nauru Agreement have important fisheries management decisions including a 3 month ban on Fish Aggregating Devices (FADs) and a mandatory 100% observer coverage. The Nauru Agreement is a fisheries agreement between eight Pacific Islands states, including Kiribati, that aims to empower their role in tuna fisheries in their EEZs The recent signing of the Shipriders Agreement between USA and Kiribati also provides an additional mechanism for fisheries management. Under this agreement Kiribati's Officers can travel on the USA surveillance vessels

and have full powers of investigation and arrest in Kiribati waters. Surveillance and enforcement of offshore fishing by DWFN, both legal and illegal, remains a significant challenge not only for PIPA but for GoK's entire EEZ.

- Climate Change, Coral Bleaching, Sea Level Rise and Ocean Acidification - In July to September 2002, there was a sea temperature hot-spot in the Phoenix Islands which caused mass bleaching and mortality of corals, most notably in the lagoon of Kanton and leeward reefs of Kanton and Nikumaroro. In 2010, another sea temperature hot-spot occurred in PIPA and impacted on the health of the corals. Long term monitoring pre and post bleaching indicates rapid recovery of PIPA's coral reefs, likely due to the fact that there are no other stressors present e.g. over fishing, pollution etc. All PIPA's atolls and reef islands are low lying and vulnerable to sea level rise. Terrestrial vegetation and seabird populations are vulnerable to salinization of groundwater due to sea level rise and inundation. There is also concern at the impacts of increasing ocean acidification on coral reefs and other species in PIPA. Due to the absence of other anthropogenic stressors PIPA has a potentially important role to play in researching and understanding impacts of coral bleaching, climate change and resilience of tropical reef systems.
- Cultural Heritage - archeological investigations have confirmed that Polynesians and Micronesians variously used the Phoenix Islands. However all attempts at settlement appear to have been unsuccessful in the long term likely due to limited freshwater resources and frequent droughts. Conservation of marae, fishing structures and sites from more recent human history with PIPA are planned. PIPA exemplifies the limit of Pacific peoples' migrations and attempted colonization.
- Ocean Dumping - An explosives dumping area was established southwestward of Kanton at the end of WWII. Coordinates for the dumping area were 3°09'S to 3°28'S, and 171°53'W and 172°13'W. Other areas of Kiribati e.g. Tarawa have been cleared of military waste due to the threat it poses to local fishermen in particular.
- Toxic Wastes – Various toxic materials were left by the US military on Kanton after WWII. Some of these materials leaked from their containers and had spilled onto the concrete floor. Asbestos strips were common at former military sites on Kanton. Polychlorinated Biphenyls (PCB's) were found in transformers and probably were also present in switches and other electronic equipment. Toxic wastes were inventoried in 2002. Most were removed in 2006 under a Secretariat of the Pacific Regional Environment Programme (SPREP)/ Kiribati/ Australian programme.
- Unregulated Visitors – Visitors to the Phoenix Islands largely arrive by recreational yachts or increasingly through tourist charters. Some may anchor and stay on one of the Phoenix Islands for extended periods. Some probably do not clear Customs and Immigration on Kanton first and others from fishing boats and freighters have been known to land. There are environmental concerns with unregulated visitors. These include: disposal of sewage and wastes, illegal collection and harvest of terrestrial and marine resources, potential introduction of Invasive Alien Species (IAS), and disturbance of bird populations. The arrival of IAS on any of the islands could be disastrous and significantly undermine the restoration goals for the PIPA. However, recently, tourists, researchers and other visitors will now require a permit to enter PIPA and are required to comply with the permit's terms and conditions aimed to preserve PIPA's natural beauty and intact ecosystem.

- Vessel Groundings, potential Oil Spills and IAS arrival - The Phoenix Islands have had numerous vessel groundings over the years. One of the earliest recorded groundings was the whaleship *Canton* on Abariringa (Kanton) in 1854. Undoubtedly, there have been other groundings that were not permanent, did not result in vessel loss, or were not reported. Ships caused coral damage during grounding and break-up. More recently (c.2001) a Korean trawler grounded on McKean Island and is believed to have been the source of the introduction of Asian rats (Pierce et al 2008). It is now also becoming clear that rusting shipwrecks add iron to the water around them, and since iron is severely limiting in the Central Pacific, this results in significant shift of reef ecology to dominance by turf algae, and death of corals (Stone et al. 2009).
- Tourism –the declaration and publicity surrounding PIPA interest in tourism, particularly dive tourism, is increasing. Tourism is seen as a potential source of sustainable income for GoK and PIPA. A consultant has been hired to prepare the Kanton Atoll Resource Plan which also include the PIPA Tourism Plan.
- Deep Sea - a significant component of PIPA is deep sea and open ocean habitat. Little is known about the submerged reefs or 14 or more seamounts within PIPA’s boundaries. Research into these areas is planned as resources and opportunities allow.
- Transboundary Issues – the range of several species present in the Phoenix Islands extend beyond the limited of the Phoenix Islands. Many species of birds, fish, and turtles migrate to and from the Phoenix Islands. In order to protect these migrating species, habitat and conditions in other parts of a species range need to be considered.
- Overall Management, Surveillance Enforcement, Human Capacity and Resources - there remains limited capacity and resources within Kiribati to provide effective management for PIPA. Isolation can no longer be relied upon to protect the values of PIPA. This is a key action area under development and resourcing in this plan and is reflected in the partnerships GoK has fostered to implement the PIPA.

Critical cross cutting issues related to the above primary issues and challenges list are:

- Lack of information (data gaps) – resource surveys on birds, plants, insects, mammals, corals, and fish of the Phoenix Islands have increased in the last decade. Nevertheless, for many species and systems on the islands, information available may be several decades old. No resource surveys have been reported for either Winslow or Carondelet reefs, nor on the unnamed reef just northwest of Carondelet. Major data gaps are noted for turtles, reptiles, marine mammals, coconut crabs, and deepwater habitat and associated species.
- Lack of accessibility to available information – During this planning effort, perhaps 90 percent of the research reports found relating to the Phoenix Islands were not previously available in Kiribati. In many cases, despite local research permit requirements, no report was submitted to GoK, or the report was misplaced or lost. Without access to documentation on previous activities and research, planning for an activity or research is difficult.
- Non-standardized data collection and analyses – In the resource surveys in the Phoenix Islands survey methodology has varied almost as much as the number of researchers.

Results from using different survey methodologies are difficult, if not impossible, to compare. In some cases, the methodology is not quantitative and resultant data cannot be compared. Survey results need to be quantifiable and comparable.

- Limited surveillance and enforcement of existing wildlife sanctuaries - Over the last several decades, there has been limited surveillance and enforcement of the declared wildlife sanctuaries on some of the Phoenix Islands – their sheer isolation has been their saving grace. This situation needs to be addressed in the formulation of PIPA. Some activities can quickly reduce pristine populations to almost zero, as in the case of recent shark finning activities and the recent harvests of coconut crabs on Nikumaroro. Without surveillance and enforcement, the resources of the Phoenix Islands can quickly be exploited to the point of stock collapse.
- Limited biosecurity measures at the source areas (especially Tarawa, Kiritimati) for vessels travelling to and through the PIPA.
- Sustainable economic development – There are limited economic opportunities in Kiribati. With the development of PIPA, opportunities for eco-tourism development and employment may develop. Opportunities may include ecotourism and catch and release fishing by visiting tourists. Other potential opportunities for revenue generation for GoK need to be investigated.

Critical issues that relate to support for management and logistics include:

- Transportation limitations – There are several major problems that will be encountered by anyone planning to use Kanton. These include the isolation and consequent lack of regular transportation to and from the island. During the Kakai Scheme, the costs of servicing the island were too high to justify the volume of cargo shipped. The diversion of an inter-island vessel was over AUD \$5,000 per trip. For any visit to the Phoenix Islands, transport costs can be very high. Current charter rate for ships to get to Kanton on a per day basis is between \$8,000-\$15,000 so about \$86,000-\$150,000 round trip spending 10 days
- High operating costs of activity in the Phoenix Islands – There are extremely limited resources available on the Phoenix Islands. All supplies and construction materials, food and equipment must be imported. This makes establishing and operating any facility on the Phoenix Islands extremely expensive.
- Remoteness of each Phoenix Island relative to others – There are eight Phoenix Islands. Some of these islands are more than 200 nautical miles (nm) away from their neighbours. This distance cannot be covered safely in a small vessel with an outboard motor. It is costly and difficult to visit all of the islands of the Phoenix Group, even if based on Kanton. A sea-worthy vessel with at least 500 nm range would be required. Also, adequate fuel supplies for refuelling the vessel would be needed on Kanton.
- Costly communication - Communication is limited to radio and satellite phone. A dedicated internet satellite disc will be installed on Kanton to improve communication links to the PIPA Office in Tarawa and outside Kiribati.

- Lack of safe anchorage and landing facilities – For most of the Phoenix Islands, except Kanton, landing facilities are non-existent. Changing weather and currents coupled with the limited size of suitable anchorage areas makes safe anchoring very difficult. During the guano period in the late 1800s, special permanent anchors and cables had to be set up for guano ships. Consideration is needed regarding permanent anchoring stations so that vessels can anchor safely and the fragile coral reef habitat is preserved.
- Lack of potable water – There is limited freshwater in the Phoenix Islands. Some of the islands do have freshwater, but not enough to support large populations. In this Plan, seven water tanks (5,000ltrs each), 245 bricks, 21 cement bags (40kg), gutter (2.4 mtr) 42 pieces, guttering strap (56 pcs) have been secured under the New Zealand Aid and will be transported to Kanton together with the prefabricated PIPA Office materials and houses for the PIPA staff once the materials arrived from overseas. .

## CHAPTER 3. PIPA MANAGEMENT PLAN 2015 – 2020:

### VISION, GUIDING PRINCIPLES, MANAGEMENT OBJECTIVES & STRATEGIC ACTION PLAN SUMMARY

#### 3.1 PIPA's Vision:

*“to conserve the natural and cultural heritage of the Phoenix Islands Protected Area for the sustained benefit of the peoples of the Republic of Kiribati and the world.”*

#### 3.2 PIPA's Mission

*“to implement effective integrated and adaptive management that ensures the natural and cultural heritage values of PIPA are maintained, and where necessary restored, to achieve PIPA's Vision”*

#### 3.3 PIPA's Guiding Principles

The Management of PIPA will be carried in accordance with the PIPA Regulations (2008) and in consistent manner with the agreed PIPA Vision and Mission using the following guiding principles (drawn from DOALOS 2007):

- Intergenerational equity - Future generations are entitled to inherit marine resources and biodiversity in a state that is as good as, or better than, their current state.
- Ecological sustainability - Ecological sustainability is the foundation of both social and economic development. Key elements of management and planning for ecological sustainability include ecosystem-based management, conservation of ecological processes, protection of critical habitats, use not to exceed maximum sustainable yield or carrying capacity, conservation of biodiversity in general and conservation of rare and endangered species in particular.
- The precautionary principle - The absence of scientific certainty should not be a reason for postponing management of protected areas. If an activity is assessed as having a low risk of causing serious or irreversible damage or if there is insufficient information with which to assess fully and with certainty the magnitude and nature of impacts, decision making should proceed in a conservative and cautious manner.
- Integrated planning and management - Many of the activities that can potentially threaten Protected Areas (PAs) occur outside their borders, including terrestrial areas, and often come under the jurisdiction of other management agencies. Management of PAs should consider all potential sources of threats and develop a management protocol that addresses these threats. In order to achieve this, management of the PA will need to be integrated with management responsibilities of the other relevant agencies.
- Adaptive management – PA management needs to be viewed as an adaptive process or experiment that is varied in response to changes in the character and intensity of threats, increased knowledge, and changes in the composition of the local community. Adaptive management requires the establishment of

performance measures at the outset of management. The results of systematic monitoring of key indicators are evaluated against the agreed performance measures, and management adjusted (if necessary) to ensure that objectives and goals are being achieved.

- Ecosystem Approach - A strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way (IUCN 2006). The application of the ecosystem approach will help to reach a balance of the three objectives of the CBD: conservation; sustainable use; and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.
- Resilience – The ability to absorb or recover from disturbance and change, while maintaining ecosystem functions and services. Resilience relates to the concepts such as representation, replication, refugia, connectivity, and management.
- Stakeholder consultation and participation – protected areas are used by a range of stakeholders, many of whom derive their livelihoods from the PA and have no alternative sources of livelihood. They are likely to be affected by management of the PA and have the right to be consulted and to play an active part in the decision-making process. Many stakeholders also possess much knowledge and experience that can assist in planning and management.
- Capacity-building - A key element to the successful implementation of PA management is skilled and knowledgeable staff. Where skills and knowledge are limited, capacity building of staff is a critical element in the success of PAs. Capacity building is required both at headquarters level, focusing on skills for effective management, enforcement, communication and decision-making, and at field levels, focusing on surveillance, monitoring, pest and incident management, communication and education.
- Technology transfer - Considerable technology is available that facilitates decision-making and the evaluation of management actions. A modern and appropriate technology base is a central component of PA management. This includes computing and communication facilities, information resources, and geographic information systems. A sustainable long-term financing strategy is also important for the success of the PA.
- Transparency of decision making – Decisions regarding the management of the protected area need to be made transparent to the public. Information on decision makers, their decisions, and the basis for their decisions should be readily available to the public.

### **3.4 PIPA Regulations (2008) - Management Objectives**

The PIPA Regulations (2008) set the long term management objectives for this PIPA Management Plan:

1. To conserve and manage substantial examples of marine and terrestrial systems to ensure their long-term viability and to maintain genetic diversity;
2. To conserve depleted, threatened, rare or endangered species and populations and, in particular, to preserve habitats considered critical for the survival of such species;

3. To conserve and manage areas of significance to the lifecycles of economically important species such as tuna;
4. To prevent human activities from detrimentally affecting the PIPA;
5. To preserve, protect, and manage historical and cultural sites and natural aesthetic values;
6. To facilitate the interpretation of marine and terrestrial systems for the purposes of conservation, education and tourism;
7. To accommodate within appropriate management regimes a broad spectrum of multi-use human activities compatible with the primary goal of marine and terrestrial conservation and sustainable use, including appropriate fishing, ecologically-sound tourism, and sustainable economic development;
8. To provide for research and training, and for monitoring the environmental effects of human activities, including the direct and indirect effects of development activities; and
9. To ensure consistency between all activities taking place in the PIPA and any third-party conservation contracts into which the Minister may choose to enter with the advice and approval of the Cabinet for the conservation and long-term sustainable use of the PIPA.

### **3.5 Summary PIPA Strategic Action Plan (SAP) Framework 2015 -2020**

To implement the long term PIPA Management Objectives the following Strategic Action Plan (SAP) Framework for 2015-2020 has been developed.

#### **SAP 1. PIPA Core Management:**

##### **Decision making, Administration, Core Management and Resourcing**

- **SAP 1.1 GoK MELAD Minister and Cabinet**
- **SAP 1.2 PIPA Management Committee**
- **SAP 1.3 PIPA Managerial Operation**
- **SAP 1.4 PIPA Regulations, Licenses and Permits and Penalties**
- **SAP 1.5 PIPA Zonation**
- **SAP 1.6 PIPA Surveillance and Enforcement**
- **SAP1.7 PIPA World Heritage Listing**
- **SAP 1.8 PIPA Partnerships, Transboundary & International Collaboration**
- **SAP 1.9 PIPA Information Management, Education and Outreach**
- **SAP 1.10 PIPA Science and Research**
- **SAP 1.11 PIPA Tourism**
- **SAP 1.12 PIPA Kanton Atoll – Sustainable Resource Plan**
- **SAP 1.13 PIPA Monitoring and Evaluation**
- **SAP 1.14 PIPA Sustainable Financing, Resourcing and Business Planning**
- **SAP 1.15 PIPA Annual Operational Work Plan & Report**

#### **SAP 2. PIPA ‘Issues to Results’**

- **SAP 2.1 PIPA Atoll& Reef Islands Restoration & Biosecurity**
- **SAP 2.2 PIPA Coral Reefs and Coastal Management**
- **SAP 2.3 PIPA Endangered and Threatened Species**
- **SAP 2.4 PIPA Offshore Fisheries**
- **SAP 2.5 PIPA Cultural and Historical Heritage**
- **SAP 2.6 PIPA Seamount & Deep Sea Conservation**
- **SAP 2.7 PIPA Climate Change**

### **SAP 3. State of PIPA Report 2014**

## **CHAPTER 4. PIPA STRATEGIC ACTION PLAN FRAMEWORK 2015-2020**

The PIPA Strategic Action Plan provides the framework, the baseline situation, targets and actions needed to implement PIPA's Management Objectives through the implementation of this Plan.

### **STRATEGIC ACTION PLAN 1. PIPA CORE MANAGEMENT**

PIPA Core Management provides for the requisite decision making, administration, management, resourcing, and operation of the PIPA. These activities are regarded as essential for the basic maintenance of the PIPA to allow meeting obligations under the relevant statute(s). These essential programme elements are summarized here:

- **SAP 1.1 GoK MELAD Minister and Cabinet**
- **SAP 1.2 PIPA Management Committee**
- **SAP 1.3 PIPA Managerial Operation**
- **SAP 1.4 PIPA Regulations, Licenses and Permits and Penalties**
- **SAP 1.5 PIPA Zonation**
- **SAP 1.6 PIPA Surveillance and Enforcement**
- **SAP1.7 PIPA World Heritage Listing**
- **SAP 1.8 PIPA Partnerships, Transboundary & International Collaboration**
- **SAP 1.9 PIPA Information Management, Education and Outreach**
- **SAP 1.10 PIPA Science and Research**
- **SAP 1.11 PIPA Tourism**
- **SAP 1.12 PIPA Kanton Atoll – Sustainable Resource Plan**
- **SAP 1.13 PIPA Monitoring and Evaluation**
- **SAP 1.14 PIPA Sustainable Financing, Resourcing and Business Planning**
- **SAP 1.15 PIPA Annual Operational Work Plan & Report**

#### **SAP1.1 GoK, Cabinet, MELAD Minister and PIPA (Amendment) Regulations (2014)<sup>2</sup>**

The Phoenix Islands, inclusive of the 200 nm EEZ and fully inclusive of PIPA, are owned by the Republic of Kiribati.

The PIPA was legally established in early 2008 with the adoption by the GoK Cabinet of the Phoenix Islands Protected Area Regulations 2008, promulgated pursuant to the Environment Act (1999), as amended by the Environment (Amendment) Act 2007.(Appendix 1). PIPA

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<sup>2</sup> Refer to Appendix on p121.

has a total area of 407,112 sq. km. and is the world's largest deep marine protected area. The PIPA Regulations 2008 are attached in Appendix 2.

PIPA is governed under the authority of the Minister of Environment, Lands and Agriculture Development (MELAD). MELAD's primary law in this regard is the Environment Act (1999), as amended (2007), and the PIPA Regulation 2008. Specific guidance is provided in the Act's Division 2 – Protected Areas (Sections 42 to 48) including protected areas that are listed for World Heritage (Section 48). PIPA is established under sections 43(1) and 86(1) of the Act.

The PIPA Regulations 2008 have three key objectives:

- (1) to prescribe a protected area for the terrestrial and marine resources of the Phoenix Islands,
- (2) to prescribe particular license and permits for regulating certain activities in the PIPA and to establish a schedule of penalties, and
- (3) to approve the nomination of PIPA to the World Heritage list.

The PIPA Regulations 2008 came into force in February 14, 2008 and provide the commitment for PIPA to be nominated for World Heritage listing. The GoK submitted the PIPA nomination dossier in January 2009 and PIPA was inscribed as the natural site under the World Heritage Convention in August 2010. Article 5 of the PIPA Regulations prescribes the Phoenix island protected area. The PIPA Permit application is attached [Appendix 3]

The MELAD Minister provides regular reports to GoK's Cabinet on PIPA's management, progress and issues arising and has created a PIPA Implementation Office within the Ministry to administer various PIPA-related activities and responsibilities.

The PIPA Regulations also give specifications for PIPA's Management Plan consistent with furthering the obligations of the World Heritage Convention. These regulations give protected area status to all 8 atoll/islands, their lagoons and internal waters, adjacent Kiribati territorial sea and the EEZ to the outer boundary specified. PIPA is considered to be Category Ib under IUCN protected areas categories: Wilderness Area: protected area managed mainly for wilderness protection.

The PIPA Regulations specify the following:

- (1) Requirements of the PIPA management plan;
- (2) The PIPA Management Committee;
- (3) General conservation and management measures;
- (4) PIPA permit, licence and penalty provisions;
- (4) The status of DWFN fishing access agreements; and
- (5) Reporting requirements for the state on PIPA.

It is important to note that in the preparation of the PIPA Regulations (2008), a review was done of relevant national legal instruments regarding coastal and marine resource conservation and international commitments to ensure harmonisation and consistency.

Related to the long term strategy for management of the PIPA is the passage into law of the Phoenix Islands Protected Area Conservation Trust Act 2009. This is a separate piece of

legislation providing for the establishment and operation of a PIPA Conservation Trust Fund in Kiribati, which is intended to provide sustainable financing for PIPA management costs, trust fund administration and agreed compensation for lost DWFN license revenues for GoK that may be associated with the restriction of PIPA to DWFN activities in the year 2019.

**SUMMARY: For this Plan (PIPA Management Plan (2015-2020) the PIPA Regulations will continue to be the primary instruction together with the high level decision making roles embodied in the MELAD Minister and GoK's Cabinet.**

### **SAP 1.2 PIPA Management Committee**

The PIPA Management Committee is formally established by the Minister under the PIPA Regulations (2008).

The PMC is chaired by the Secretary of the Ministry of Environment, Lands, and Agriculture Development (MELAD). The Management Committee meets regularly; monitoring and managing decisions ensuring these are well documented and reported by the PIO Director who also acts as secretary to the Committee. The PIPA Management committee comprises representatives of:

- MELAD (the Principal Environment Officer, the Environment and Conservation Division, PIPA Office),
- Ministry representatives from Fisheries, the Phoenix Islands, Finance, Tourism, Foreign Affairs, Commerce,
- The Office of the Attorney General
- Kiribati Police Service
- Atoll Research Centre of the University of the South Pacific
- Need to include Meteorological Office (role to supply climate change data – establishment of full time station in Kanton),
- Need to include Ministry of Education (being key player in cultivation of conservation mindset of young people with lasting effects into the future)

In addition, local NGOs (e.g., Foundation of the People of the South Pacific) participate in an advisory capacity as do international NGO PIPA partners, such as CI and the NEAq.

The PIPA-MC, has a successful track record in decision making and recommendations to the MELAD Minister and through to Cabinet as needed and appropriate.

As specified in the PIPA Regulation 2008, the primary responsibilities of the PIPA MC are:

- Review and update the PIPA Management Plan as may be required from time to time by Kiribati and the Trust.
- Resolving any interagency differences and making recommendations to the Minister relating to actions for PIPA's management,
- Providing advice as required by the Minister, and
- Monitoring PIPA's management and making reports as required by the Minister to ensure compliance.

Three Advisory Sub-committees had been established to assist the PIPA MC in carrying out its functions in the protection and preservation of PIPA and sustainable development and in facilitating the implementation of the Management Plan 2015-2020. They are the PIPA

Biosecurity Advisory Sub-Committee (PBASC), the PIPA Surveillance Advisory Sub-Committee (PSASC) and the PIPA Tourism Advisory Sub-Committee (PTASC). Further the PIPA MC has a key role to provide support for acquiring resources for implementing the PIPA management plan.

**SUMMARY: For this Plan (PIPA Management Plan (2015-2020) the PIPA Management Committee will continue in its primary role as the management and Ministerial advisory body, and government coordinating body for the PIPA and MELAD's Minister.**

### **SAP 1.3 PIPA Managerial Operation**

The PIO Director together with the Education, Media and Information Officer, the Finance Officer and Administrative Assistant are based at the PIO Office at MELAD in Bikenibeu (Tarawa). The PIO team are responsible for the day-to-day operation of the PIPA. In this Plan the PIO Office will be expanded to Kanton now that the PIPA Kanton Coordinator (PKC) and the PIPA Kanton Assistant (PKA) have been recruited. The PKC besides representing PIPA interests on the island is responsible for marine research and will work closely with PIPA scientists. The PKA look after quarantine including wildlife. This includes a close working relationship fostered with the Agriculture Division on Kiritimati in the Line Islands and MELAD Wildlife Unit.

Initial funding for this expansion came from the United Nations Environment Program (UNEP) Global Environment Facility (GEF) Pacific Alliance for Sustainability (PAS) funding and associated co-financing to PIPA with additional funds provided by the PIPA Trust for the next five years plan period 2015-2020. Such funds will cover the ongoing cost of core PIPA staff and operation and management costs, trust fund costs and compensation to Kiribati Government for the loss of revenue from DWFNs in closing off PIPA.

- PIPA Implementation Office – MELAD Tarawa

Core staffing: - PIO Director, PIPA Administrative Assistant Education/Outreach/Communication Officer, Finance Officer. Other short term staff and/or consultants may be used based on PIPA needs and resources.

Core role: day-to-day operation of PIPA and promotion of its mission and vision in collaboration with the Kanton PIPA office and the MELAD Wildlife Unit and the Agriculture Quarantine Division on Kiritimati. The PIO will provide secretarial role to the PIPA MC.

Infrastructure requirements: The PIPA House: The PIPA House is a concept conceived in the midst of limitedness. That is, firstly, the current office space is very small for the four staff and is hidden and away from the access of the public. In addition the PIPA Trust Office is more than a mile away and with a nonstrategic location. Secondly, as the public and students are more than aware of the PIPA Initiative with PIPA elements included in the school curriculum and public outreach still underway – more of the public wants to see the real PIPA but the PIPA is 1,700km away from Tarawa. Thirdly, the PIPA Implementation Office (hereafter referred to as PIO) has been receiving interests from overseas researchers, eco and recreational tourists who in most cases have to finally

come into the PIPA through Samoa, Fiji and even Tuvalu. As already approved by the PMC, the site of the new PIPA Office is above-the-lagoon on a raised concrete platform adjacent to main gate to MELAD. With PIO and PIPA Trust offices built together over the lagoon, this will make it publically visible and more importantly accessible.

The PIPA House will serve as a multi-purpose center – as a small PIPA in Tarawa, the Gilbert Group of Islands, as a Museum, a Conservation Learning Centre, a Conference Centre, Marketing, Strategic and Logistic Centre, and as a Classroom for PIPA Workshop and Training Centre. As Small PIPA, the idea is to set up the atmosphere surrounding the new compound as an MPA. As students, tourists, others step on the walkway towards the PIO premises, they can start to feel the tranquility and serenity of the PIPA. The PIPA House therefore needs to wisely place the PIPA islands' booths in specific locations within the House. The notion of the I-Kiribati maneaba should also appear in the arrangement so everything is wrapped up in a traditional setting, as this will make the setup beautiful and unique. The traditional idea of *boti*<sup>3</sup> or seating arrangement may help in allocating the inside of the House into *boti* of PIPA islands. For example, the House will have 8 *boti* allocated for each of the PIPA islands and in each *boti*, in the fashion of booth and small aquariums, the most outstanding natural resources will be put on display. For example, Orona Island is said to be very abundant in clamshells. In the Orona *boti*, the clams will be put on display in terms of real clams in aquarium, pictures, posters, literature, videos, etc. Nikumaroro is more associated with the legendary American Aviator, Amelia Earhart and some pertinent displays to be put up in this *boti*. We can also liaise with TIGHAR on other items to display. In terms of resources, the island is said to be very rich in coconut crabs. It would be good too to set up displays on this creature which many children in Kiribati have not seen. The Culture Division of the Ministry of Internal Affairs will assist the display of relevant PIPA cultural and historical heritage.

- PIPA Office – Kanton Atoll

Core staffing: The PIPA Kanton Coordinator (PKC) and the PIPA Kanton Assistant (PKA) have been recruited to work on the island.

Core role: The PKC besides representing PIPA interests on the island is responsible for marine research work and work closely with PIPA scientists, visitor education, surveillance and management, monitoring and Kanton atoll resource utilization. Also implementing the Kanton Atoll Resource Use Plan. The PKA is responsible for PIPA biosecurity issues, including border protection to prevent the accidental introduction of invasive species and their surveillance,

Infrastructure requirements: In this plan, two staff houses will be built by 2015 including an Office. Satellite for internet to install and CB Radio for communication and a radar, small boat for marine research and motorbikes funded under the GEF. A suitable Patrol Boat (PB) dedicated to PIPA for policing will be provided in 2016 under Ted Waitt Foundation (TWF) including additional office equipment (computer, furniture) purchased for the Kiribati Police Services to support two Surveillance Specialist. Since the PIPA PB is not only designed for the PIPA patrol but also assisting Tourist or Scientist for research work, a steel hull is the best design for the PB as it will have less maintenance. PIPA being isolated, the PB should have

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<sup>3</sup> Boti (pronounced pause) is a traditional sitting position in the maneaba. People cannot sit anywhere but in the areas where their clan used to sit. This sitting position also points to your role in the village, the location of your dwelling in the village and the lands you own.

two engines and two generators so that there is always a back up when one is down or awaiting for spare part which of course may take long to arrive. The spare engine or the spare generator will be able to control the ship for safety during bad weather and so forth. Simple engines, gear box and machineries will provide easier maintenance. There should be sufficient provisions of spare parts on board the vessel including a fully equipped workshop in location.

The PB should be no more than 10 days of endurance with 1500km range @ 8-16 knots with 12 crew. The Command base and the PB should be fitted with communications (VHF and HF radio), VMS tracking system. The channels or the operating systems must be all compatible with PB, Kanton PIPA and Tarawa PIPA Office. The design should be similar with the current Kiribati Police Maritime PB but smaller with no mounted guns forward or on each side. The ship should have a system compliant to the International standard Marine for environment.

The fresh water making equipment (desalination plant) should be made available on board to provide hygienic and healthy drinking water to the crew and passengers.

In order to sustain the PB, it will also require a robust and complete on-going maintenance program to support the PB, including the provision of funding for maintenance in location and dry docking, fuel, training, duty travel and administration support etc; A local store (retail shop) or supply chain from Christmas Island to provide Crew provisions for the patrol days is also important. The morale of the crew needs to be high to make them happy whilst executing their duties.

Safe and good berthing facilities are required for the PB to ensure that it is able to use shore power (mobile generator) and loading of water facilities in case ship desalination plant is defective. A refueling storage and refilling points or dispose of any grey water. The base workshop and all associated tools and equipment for the day-to-day maintenance, including a generator. This will support the PB on any maintenance or repair work as some machineries will need power to operate. The crew facilities and PB HQ is also important so that they can work out their planning and day to day work with the PIPA office or the Departmental ship work. The accommodations should also fit all the families and should be located near the wharf so in terms of emergency or call, everyone should respond to the call on a walking distance.

- MELAD Wildlife Unit and the Agricultural Quarantine Section– Tarawa and Kiritimati

In many respects and Tarawa and Kiritimati Atoll are gateways to the Phoenix Islands. The PKA will work closely with the Agricultural Quarantine Section In particular biosecurity measures should be planned and implemented in a complementary way for both the Phoenix and Line & and the Gilbert. To avoid the accidental introduction of invasive species via goods destined to Kanton from Tarawa and Kiritimati, the following should be carried out:

At the goods suppliers at Tarawa and Kiritimati

- Raise awareness amongst suppliers and encourage voluntary participation in ensuring through inspection that supplies are free of rodents, ants, lizards, seeds, etc. and use packaging that is invasive species proof. Use local examples, e.g. suppliers at

Christmas now know about the undesirable presence of Yellow Crazy Ants (YCA) and black rats at Kiritimati, while those at Kiritimati will know about YCA and rodents.

- Keep timing between goods inspection/packaging and their delivery to the supply vessel to a minimum. If this is not possible, goods must be stored in an invasive species proof area, e.g. the rodent proof warehouse at KPA, Kiritimati and rodent-proof warehouses at Betio.
- Avoid storing goods outside except for temporary storage site during the day, e.g. at the far end of the wharf at Christmas.
- Raising awareness amongst suppliers should be undertaken on a regular basis e.g. during biosecurity community workshops, also prior to and when ordering a big supply of goods.
- Provide suppliers with a biosecurity checklist to remind what they need to do and how to do it.
- Ensure that suppliers are complying with the required biosecurity measures through inspection of suppliers' premises and when goods are delivered to warehouse (KPA).
- Also it is worth considering whether it is possible to encourage biosecurity via a biosecurity warrant system whereby those suppliers who are compliant with the required biosecurity measures are awarded a warrant for supply to Kanton. Condition for the warrant must be made clear to suppliers. Conversely failure to comply should lead to the loss of the warrant and hence, the contract for supplying the goods.

At the Departure Wharves at Kanton, Kiritimati and Betio

- Implement continuous rat control (traps +/- bait stations) at wharf and warehouses where the supplies are stored before they are loaded on the boats.
- Implement mynah eradication at Betio before they become firmly established in Tarawa.
- Do visual inspections for IAS including invasive ants, rodent sign, etc. and implement control as needed.
- Rubbish must be disposed of in covered rubbish bins, burnt at site.
- Clear existing rubbish away from wider port area including recycle yard at CXI and Betio
- Remove copra remnants "cemented" into wharf crevices at CXI and wash down wharf after each loading/unloading of copra (copra will attract rodents and ants and make it harder to detect their presence during surveillance)
- Avoid night loading/unloading at all ports and re-align lighting at CXI wharf to at least refocus lights downward (i.e. not toward anchored ships which may attract flying insects)
- Raise awareness amongst staff at port authority at CXI and Betio and at the container terminal (Betio) staff and encourage voluntary participation in surveillance, removing and/or reporting of any suspect species around the wharf, in the warehouses, terminal and when loading the supplies on the boats.
- Provide staff training on what action to take and how and what to report when invasive species or contamination is detected. This should be done on a regular basis preferably, every 6 months and stepped up as needed. In the case of Kanton, the above all applies to community members generally.

Note: consider providing appropriate incentives and encouragement for port authority staff to maintain effective biosecurity at the wharf and warehouses.

- Multi-Agency responsibilities, PIPA-MC

It is recognized that as per the PIPA-MC membership and operation PIPA is a multi- agency undertaking. To be consistent with this arrangement, the MELAD PIPA Implementation Office and its Director (under the instruction of the PIPA-MC and with the Minister’s endorsement) will contract out specific responsibilities on an annual basis. Contracts will be based on the PIPA-MC endorsed work plan. Agreed services that are required to manage the PIPA effectively are shown in the Table below:

Table 2. PIPA MC Multi-Agency responsibilities.

Agency	Roles and responsibilities
Ministry of Fisheries and Marine Resources Development	<ul style="list-style-type: none"> <li>• Provision of catch data outside the NTZ in the Phoenix Group and in other areas. [MFMRD , MELAD, MLPD to determine variables for record keeping]Marine resource surveillance and enforcement and provision of updates/VMS images to the PIO</li> <li>• Coral reef and marine monitoring in collaboration with the PIPA Scientific Advisory Committee</li> <li>• Links with the Forum Fisheries Agency; Secretariat of the Pacific Commission (SPC); Western Central Pacific Tuna Commission; and the CITIES.</li> </ul>
Ministry of Environment, Lands and Agricultural Development[Agricultural Quarantine and ECD]	<ul style="list-style-type: none"> <li>• Biosecurity and IAS issues</li> <li>• Environmental monitoring and impact assessment</li> <li>• Work in collaboration with the PIPA Biosecurity and Advisory Committee.</li> <li>• Environmental and other conventions</li> <li>• Terrestrial, birds and invasive species (through Wildlife Conservation Unit (WCU), Kiritimati), and Noumatong on Nonouti Island in the Gilbert group.</li> <li>• links with Convention of Biological Diversity (CBD); World Heritage;</li> </ul>
Office of Te Beretitenti (Kiribati Maritime Police)	<ul style="list-style-type: none"> <li>• Surveillance and enforcement services</li> <li>• Provide PIO with VMS images for record keeping</li> <li>• Climate Change (KAP)</li> </ul>
Ministry of Communication, Transport and Tourism Development	<ul style="list-style-type: none"> <li>• Tourism promotion of PIPA, tourism planning and feasibility study</li> <li>• Tour operator/Visitor Management</li> <li>• Work with the PIPA Tourism Advisory Committee</li> </ul>
Office of the Attorney General	<ul style="list-style-type: none"> <li>• Legal services</li> </ul>

Ministry of Education	<ul style="list-style-type: none"> <li>• Provide guidance on curriculum development works in relation to efforts to include PIPA lessons into relevant curriculums (Community and Culture for Junior students and Geography for Intermediate and Senior students);</li> <li>• Facilitate outreach in efforts to cultivate a conservation mindset and appreciation of the environment;</li> </ul>
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Any other agencies and activities not specified above may be specified by the PIPA-MC and/or Minister. The Ministries roles and responsibilities in the Table above will be incorporated under each Government Ministries Operations Plan.

- Existing government services, Kanton

The current government workers on Kanton comprising of a police and customs officer, nurse, school teacher, wireless operator and meteorology officer have played a role in management, surveillance and enforcement of PIPA regulations. Such services will be further enhanced with additional financial support to the Kiribati Maritime Police patrol boat trips to PIPA, and purchase of the patrol boat dedicated to PIPA. In this Plan, the government workforce on the island will be strengthened since Kanton is the port of call/gateway to the rest of the PIPA islands, and moreover a world heritage site. The presence of other key government ministries including Customs, Immigration and Agricultural Quarantine Unit will be required for the proper monitoring, control and enforcement of PIPA's biosecurity protocols thus preserving PIPA's natural beauty and intact atoll ecosystems. Activities under SAP 1.12 Kanton Atoll Resource Use Plan are also relevant.

**SUMMARY: For this Plan (PIPA Management Plan (2015-2020) the PIO will be expanded to Kanton Atoll with the establishment of an Office, living quarters for the PIPA Kanton Supervisor and PIPA Kanton Assistant. Government Ministries represented on the island including the Office of the President (Police Officer and Meteorological Officer), Finance and Economic Development (Custom Officer), Health and Medical Services (Medical Officer), Communications, Transport & Tourism Development, and the Ministry of Education (Primary Teachers) will also provide the needed services on the island in support of PIPA but with financial support from their own ministries. In addition, activities identified under SAP 1.12 Kanton Atoll Resource Use Plan will be carried out under the direction of the PIPA Management Committee and managed by the PIO Director.**

#### **SAP 1.4 PIPA Regulations, Permits, Licenses and Penalties**

The PIPA (Amendment) Regulations (2014) provide explicit guidance to licenses, permits and penalties allowable under the PIPA. The exception to this is the ongoing management of the DWFN licenses as provided for by GoK's Fisheries Ministry consistent with the current Phase 1 Zonation of PIPA. However, by January 1, 2015, the entire PIPA will become a no-take-zone.

The PIPA (Amendment) Regulations (2014) also provide for any approvals for permits or licenses issued by the Minister or designated authority shall be consistent with the provisions of the Accepted PIPA Management Plan and Regulations. Further the Principal Environment

Officer has the primary responsibility and authority to commence civil, criminal, injunctive or other action against any person or corporation reasonably believed to be in violation of the Environment Act, PIPA Regulations and/or the PIPA Management Plan.

The Principal Environment Officer on the advice of the PIPA Tourism Advisory Committee and the PIPA Scientific Advisory Committee has the responsibility and authority to amend, suspend, revoke or withhold any license or other authorization issues to a person or corporation reasonably believed to be in violation of their terms of license or authorization.

Currently, Licenses and Permits in the PIPA, issued by the Principal Environment Officer, are required for the following activities:

#### Permits

- Science, cultural, management, or educational studies – submission of research proposal to PIPA Director, discussion and recommendation by PIPA-MC on the advice of the Scientific Advisory Committee and the PIPA Tourism Advisory Committee . Subject to approval (or not) by the Principal Environment Officer, the PIPA Director has authorization to issue a research permit (see Appendix 3) with an associated requirement of a research permit fee.
- Specimen collection – special permission is required from the Principal Environment Officer and is considered as part of the Research Permit process as outlined above, with final approval from the Principal Environment Officer and payment of specimen collection fee.
- Tourism Operators – A submission of a tourism operator proposal to the PIPA Director is required. This will be followed by discussion and decision by PIPA Tourism Advisory Committee advising the PIPA-MC. Subject to the approval (or not) of the Principal Environment Officer, the PIPA Director has authorization to issue a tourism operation permit and collect the associated permit fee. .
- Visitor/Tourist Permit – if not covered by the Tourism Operator permit, then approval of a visitor permit can be made by the PIPA Director and/or applied for when the visitor reaches Kanton Atoll. Furthermore, if catch and release fishing will be conducted in the PIPA, a permit and its associated fee will be required.
- Special Permit – any special permission must be obtained from the Principal Environment Officer prior to the start of any activity. Again a proposal must be submitted. The evaluation of such proposals is under the management of the PIPA Director with input from the PIPA Tourism Advisory Committee and PIPA Scientific Advisory Committee advising the PIPA-MC, with final approval given by the Principal Environment Officer.

#### Environment License.

- Pursuant to article 31 of the Environment Act, any person may apply to the Principle Environment Officer for an environment license in relation to a proposed activity in PIPA by using an application form approved by the Principal Environment Officer from time to time, and attaching information required by that form; and paying such fee as may be prescribed by regulation..
- In making a decision, the Principal Environment Officer may grant or refuse to grant an environment license guided by the principles of sustainable development, not act inconsistently with any international obligation or agreement relating to the

environment entered into by Kiribati; act in accordance with any other requirements that may be prescribed.

- Pursuant to article 33 of the Environment Act, an environment impact report will be required.

### Penalties

A schedule of offenses, consistent with the Environment Act 1999, as amended is appended. and the PIPA (Amendment) Regulations (2014) will become enforced once approved by the Minister for Environment, Lands and Agricultural Development. The PIPA Management Plan specifies activities that require a PIPA Permit within the PIPA.

A person who (a) carries out; or (b) is responsible for, directs, causes or allows the carrying out of, an activity requiring a PIPA Permit, without a PIPA Permit, commits an offence. Liability: fine of up to \$100,000AUD or imprisonment for up to five years, or both.

### *Enforcement Powers*

For the purposes of enforcement, the offences in this Accepted Management Plan constitute offences under the Environment Act 1999. In relation to enforcement of the offences in this Management Plan, the Environment Inspectors have all of the powers outlined in the Environment Act 1999 and any supporting regulations

It is important to note that the Environment (Amendment) Act 2007 (Appendix 1) gives special recognition and protection to listed World Heritage sites (Section 48) with a fine provision of up to \$100,000 AUD and a maximum of 5 years in prison for an offence relating to a listed Kiribati World Heritage site (Section 28).

### Reporting

On a six monthly basis the PIPA Director under the approval of the Principal Environment Officer shall provide a summary report on permits issued, any management issues arising or anticipated, and any recommendation for the Principal Environment Officer and Minister to consider in this regard. License and permit fees will be reviewed on an annual basis.

**SUMMARY: For the PIPA Management Plan (2015-2020 the permit and license regime, as outlined above, will continue to operate, be reviewed on a six monthly basis and management refined and improved accordingly. Schedule Fees shall be reviewed from time to time as may be determined by the PMC and shall be endorsed by the Principal Environment Officer. Applications for the PIPA Permit and Environment License and other related documents shall be made available on the PIPA website including direct email contact of PIO Director.**

### **SAP 1.5 PIPA Zonation**

The use of zonation continues to be a core tool of PIPA Management in this Plan. As of January 1, 2015 per Kiribati Cabinet decision (January 2014) there is a total ban on commercial fishing within the PIPA boundaries. This has fast tracked the originally planned phased full closure of the PIPA to fishing. In this Plan (2015-2020) zonation of Kiribati's Phoenix Islands EEZ, inclusive of PIPA, is summarized below against the original 2010-2014 PIPA Zonation and the PIPA 2015-2020 Zonation is depicted in Figure 4.

The use of zonation continues to be a core tool of PIPA Management in the new PIPA Management Plan 2015-2020. As of January 1, 2015 as per Kiribati Cabinet decision

(January 2014) there is a total ban on commercial fishing within the PIPA boundaries. This has fast tracked the originally planned phased full closure of the PIPA to fishing. In this Plan, zonation of Kiribati's Phoenix Islands EEZ, inclusive of PIPA, is summarized below

### 1. Atoll Reserve Zone

The Territorial Sea (to 12 nm) and all Internal Waters of the 8 PIPA islands including; Birnie, Enderbury, Kanton, Manra, McKean, Nikumaroro, Orona and Rawaki. A total ban of all extractive activities, and strict control of all activities to ensure there is no impact to marine and terrestrial species including habitats. This is the strictest level of protection and all activities must be explicitly assessed and permitted by PIPA MC and should be commensurate with the objectives of PIPA.

The territorial sea is known to harbour a wealth of PIPA's natural values. The essentially pristine environment, outstanding underwater clarity, the spectacle of large groups of charismatic aquatic animals (e.g. bumphead parrotfish, Napoleon wrasse, surgeonfishes, parrotfishes, groupers, maori wrasse, sharks, turtles, dolphins, manta rays, giant clams) in quantities rarely found elsewhere in the world, aesthetically outstanding coral reef features (e.g. giant clams, large coral heads, pristine coral life, and apex predators notably the sharks, many of which have been depleted elsewhere.

It is important to note this area is known as a No-Take-Zone in the previous Plan but now renamed the Atoll Reserve Zone to take into account of PIPA's terrestrial values- wildlife including the great number of seabirds. PIPA's location in the center of the Pacific Ocean, isolated and remote is an important feeding and breeding area of a number of birds including the endangered and vulnerable bird species. Three PIPA islands are already protected under the Wildlife Conservation Ordinance (1977) and under the PIPA Regulations including the rest of PIPA islands.



*Some of the Endangered and globally important bird populations of the PIPA. From left to right, teruru or Phoenix petrel, Te bwebwe ni marawa or white-throated storm-petrel, te etei or frigatebirds (two species) and te raurau or blue noddy. Ray Pierce pics 2006-13.*

As a world heritage site, any violation inside the atoll reserve zone could be charged with S\$100,000 fine or five years imprisonment or both.

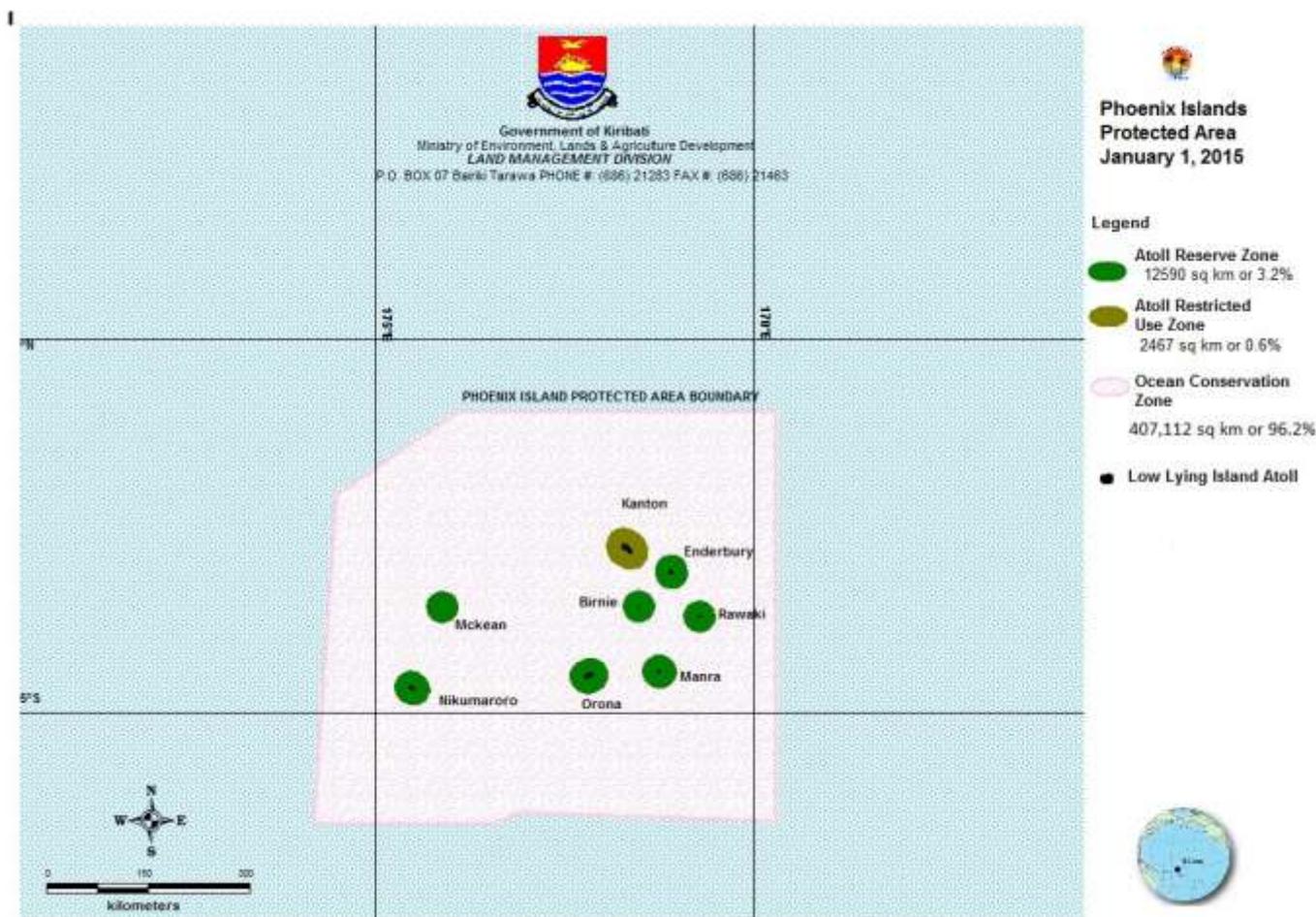
### 2. Atoll Restricted Use Zone

Kiribati's Territorial Sea (to 12 nm), Internal Waters, and terrestrial areas of Kanton Island. Kanton is currently the only island in PIPA inhabited with a population of about 30 people comprising mainly of government care-takers (policeman, nurse, primary school teachers, meteorological officer). By March 2015, two PIPA staff will be stationed on Kanton as well. The PIPA Office and living quarters will be completed by then.

Sustainable, subsistence use of resources are allowed in this zone, allowing some "take" of specified allowable species, and construction/habitat alteration that has the purpose of enhancing the management and use of PIPA. All activities must be permitted and assessed to have non-significant impacts on species and habitats. This designation applies solely to

Kanton Island, and all activities are to be managed under a Kanton Atoll Sustainable Resource Plan (SAP 1.12). Permit and/or license requirements to be assessed and decided upon by the PIPA MC.

**Figure 4. PIPA Zonation 2015-2020**



**SUMMARY:** As of January 1, 2015 the Phoenix Islands Protected Area will be closed to all forms of commercial extraction and fishing. The terrestrial and marine resources out to 12 nautical miles around Kanton will be managed under a restricted and sustainable resource use plan (see SAP 1.12 Kanton Atoll Sustainable Resource Plan).

### SAP 1.6 PIPA Surveillance and Enforcement

It is recognized that effective surveillance and enforcement of PIPA is a significant challenge in terms of technology, capacity and resources.

Minimization of illegal activities is the key to the success of any MPA. This can be achieved through the application of several tools. In the case of PIPA, there are major constraints to surveillance. PIPA is extremely remote, inaccessible, and covers a very large area.

Surveillance tools that could be applied include:

- Aerial surveillance (by aircraft and satellite);
- At sea surveillance (by boat); and
- Land-based surveillance.

### *MELAD PIPA Office & Director*

Under the auspices of the MELAD Minister, Principal Environment Officer and guidance of the PIPA-MC, the PIO Director is responsible for the definition, coordination, costing and management of surveillance and enforcement services for PIPA, which are sourced to relevant agencies within and outside of Kiribati. This will focus on building capacity within existing surveillance and enforcement programmes such as fisheries, and invasive species management. The MELAD PIPA Office and Director will also focus on issues faced in surveillance and enforcement of a large, remote MPA namely;

- Fishing (legal, illegal and related activities)
- Other Boat and Visitor Management
- Kanton Atoll Subsistence Resource Use
- Protected islands and bird populations

### *Fisheries Surveillance and Enforcement (Ministry of Fisheries and Maritime Police)*

Kiribati's Ministry of Fisheries and Kiribati's Maritime Police have developed a Kiribati-EEZ wide surveillance and enforcement programme largely targeted at preventing illegal fishing and monitoring of licensed vessels. This programme is in cooperation with other Forum members states under the Forum Fisheries Agency (FFA) and under a range of bilateral and individual agreements including those provisions made with DWFN vessels. Provisions include:

- Vessel Monitoring System (VMS) all licensed boats must carry VMS system to identify vessel and location in real time, this can be matched to the operation by FFA of a geo-fence with alerts when vessels are known to enter or depart a particular EEZ area. In case these fishing vessels encounter VMS technical problems, they will then have to send their reports on manual basis to the Fisheries HQ, Bairiki. If they are in Betio port, they will be advised not to leave port as FFA has got their authorized technician in Tarawa. FFA has upgraded the NCC VMS by using the Goggle Earth where more applications are available compared to the previous VMS smartrack. PMU is using both versions to compare real time with positions of targets.
- RKS Teanoai has been fitted with FFA VMS in which our PB can be detected by FFA during the joint operations such as Big Eye, Island Chief and Kurukuru. This information can be shared to PIPA in which PIPA office (Kanton and Tarawa) can see (real time) the whereabouts of our PB.
- A more advance HF radio was installed on RKS Teanoai where it has the capability of sending/receiving text messages from or to the Shore base. This HF radio will need further upgrading during the plan period.
- Fisheries Observer Scheme – currently DWFN carry trained Kiribati Fisheries Observers (ca. 20% coverage). Under the third arrangement to the Nauru Agreement, purse seiner observer coverage is 100%.
- Aerial surveillance provided by New Zealand (NZ), U.S. Coast Guard (USCG), France Air Force and Australia Air Forces (Orions) coordinated with regular and special surveillance operations managed by the FFA.
- Operation of Kiribati Patrol Boat- regular patrol runs (currently 1-2 per year to Phoenix Islands) and called out when assistance required e.g. vessel grounding or a vessel of Interest (VOI) to intercept.

- USA Kiribati Shipriders Agreement (2008) whereby Kiribati Maritime and Fisheries Officers are able to travel on USA Coastguard Ships and have the full power of arrest of vessel and other related powers under Kiribati Law. This initiative has already proven highly successful with the impoundment and prosecution of a vessel caught illegally bunkering off Nikumaroro Atoll in PIPA (\$4.7 AUD million fine).
- The USCG provided at least two to three ship riders every year. In most cases they will cover the Line Islands and the PIPA.
- RAAF could also assist if there is an urgent request from the GOK.
- Police Maritime continues to obtain ongoing support from the Australian Government under the Defense Corporation Project (DCP) by supporting a bi-annual RKS Teanoai slipping in Australia to comply with Maritime Safety Requirements for sea worthiness for policing of Kiribati EEZ including the PIPA.
- Australia is now commencing their new patrol boat program to the PPB regions and Kiribati is expected to have her new patrol boat in 2023 based in Tarawa.
- FFA to assist to develop an automatic geo fence entry and exit alert signal of PIPA close boundaries in order to monitor vessel movements in PIPA. (Currently, the PIO Tarawa receives satellite images of vessels on a daily basis on vessel movements in PIPA waters)
- In the case of the normal reporting, the Police Maritime Unit received from fishing vessels when entering or exiting KEEZ it is reported as; Area.Entry.Republic of Kiribati (EEZ) by JIN HUI 9. The PMU would then request FFA to do the similar reporting techniques but only for PIPA. Example; Area Entry. PIPA (Zone) by JIN HUI 9. When you open up this report it will give you more details such as Alert: Area.Entry.Republic of Kiribati (EEZ) in this case Area Entry Republic of Kiribati(PIPA Zone) Date: 17/08/2014 9:00:00 AM  
Unit: JIN HUI 9 Pos: 04 05.8996' S 175 33.2003' E knots deg for the case of PIPA the Longitude:W
- Cost efficiencies, program design, and additional resources for PIPA surveillance can be developed further in partnership with the United States through the 2009 sister site agreement with PMNM.
- Additional support for the operation of the Kiribati Patrol Boat would enable more surveillance runs of PIPA. Primary support would include assisting in fuel and crew costs. Australian Defense Corporation Project (DCP) has provided ongoing support on fuel to Kiribati on 1:1 ratio that PMU normally share the cost of fuel 50% with Australia. During joint surveillance such as Island Chief Ops, Kurukuru and Big Eye Operations, Australia provide victuals for the crew (100%).

#### *Terrestrial Surveillance and Enforcement*

The islands, seabirds and turtle nesting beaches of the Phoenix Islands are vulnerable to illegal and/or unsustainable use and invasive species. Movement of people to Kanton or to any of the PIPA islands is now strictly monitored. Visitors going to Kanton from Tarawa and Kiritimati will complete the Kanton arrival form which checks that no invasives are brought into PIPA.

#### *Surveillance of Kanton Atoll*

With planned increased human resources and infrastructure (including an atoll based boat) for Kanton atoll, there is a commensurate role for increased effort in surveillance and enforcement for Kanton. This will include monitoring the compliance of visitors and local

resident caretaker population on Kanton for adherence to the proposed Kanton Atoll Sustainable Resource Use Plan.

Due to the remoteness of PIPA, a small Patrol boat is essential in order to provide visibility in the region from time to time. It will be based in Kanton and it can also intercept any illegal vessels that are engaging in any illegal activities in the PIPA. There is a need to establish infrastructure such as a workshop and spare parts for maintenance work, fuel depot including water and supply of ration, for the crew to support the PB operation from the Kanton base.

*Additional*

In order to assist in the detection of illegal activities, visitors and residents are required to comply with the following.

- All individuals, and/or the vessel they are on, must report during their stay in the PIPA: sightings of all other individuals or vessels, any suspicious activities, any out of the ordinary conditions. This includes all of the Phoenix Islands, (except on the island of Kanton) and all of the waters within the PIPA area.
- Clearance for entering or operating in PIPA waters should be done from Kanton island.
- Sightings must be reported on the day observed. Reports will be sent to the MFMRD Fisheries Licensing and Enforcement Unit, the Kiribati Maritime Police Service (KPS), PIPA Office in Kanton and the PIPA Office Tarawa MELAD). The reporting format is as follows: individual name(Is this a crew list? / vessel name / vessel number/call sign / time in GMT / suspicious activity (short description, GPS Co-ordinates).
- First PIPA office has to register their HF frequency with the Ministry of Communications, Transport & Tourism. This will allow PIPA to own a frequency and no one will be allowed to use that frequency, in this way no one can interfere during your calling and working schedules using this designated frequency.
- Other alternatives are the Kanton Police (not operating 24/7) and the Kilo Papa (Operating 24/7). Their frequencies are the same 7692.5Khz.
- The National Coordination Centre (NCC) or the Patrol Boat Office, at the Police HQ can also be reached on frequency of 8005 Khz. RKS Teanoai is also listening on this frequency. NCC is not on 24/7 unless RKS Teanoai is at sea (Surveillance/patrol), NCC will then be man 24/7. These frequencies above are restricted for non police organization. .
- Illegal Activities such as fishing, bunkering or Transhipment in the PIPA are to be reported immediately to Police Kanton and PIPA Kanton. If these ships are caught by the Patrol boat, they must be arrested to Kanton and a full criminal investigation is to be conducted by the Police Officer on Kanton.
  - The arrested vessel must remain in Kanton until a RELEASE NOTIFICATION is received from the AGs office. Without this release notification, Police, Fisheries and PIPA are not allowed to release the vessel. Once the release notification is received, the Police Maritime will inform the Police Officer on Kanton for the release of the arrested vessel.
- For any suspicious activity or out of the ordinary condition, if possible photographic documentation should be made and submitted to the PIPA Authority. Images can be sent as attached files to emails.

- It is not the responsibility of any visitor (individual or vessel) to the PIPA area to apprehend any person or vessel acting contrary to these rules. However, reporting is a requirement.
- Every vessel transiting in the PIPA must maintain course and speed. The international law of the sea will only allow ships to stop under certain circumstances as it is specified under the law of the sea. All foreign fishing license vessels shall report 24 hours prior their entry to the Fisheries as the Marine Protected Area is also specified in the Kiribati Fisheries Act 2010.
- Biosecurity measures at Kanton must follow the PIPA Biosecurity Guidelines.
  - Enforcement must be closely linked with surveillance. Surveillance is integral in identifying possible illegal activities. Information from surveillance activities shall be conveyed to the Police Maritime Unit at Betio and the Fisheries Licensing and Enforcement Unit at Bairiki. The Police Patrol boat has got HF radio to coordinate the surveillance operation in the PIPA with the Kanton Police.
  - GoK will continue to rely on existing measures for enforcement based on fisheries regulations and allowable permits and conditions therein.

#### *PIPA Surveillance Advisory Sub-committee (PSASC)*

The PSASC is formed by the PMC at its meeting 02-14, 28 August, 2014. The objective of the Committee is to provide advice to the Phoenix Islands Protected Area Management Committee (PMC) on matters concerning the monitoring and surveillance matters within PIPA's closed area. Enforcement of the entire Kiribati EEZ including PIPA waters is the responsibility of the Kiribati Police Maritime Unit (KPMU) and Fisheries, Licensing and Enforcement Unit (FLEU). The PSASC is chaired by the Director of Fisheries and members comprising of the Director, Immigration Division, Comptroller, Kiribati Custom Service, AG's Office, and PIO Director.

**SUMMARY: For this Plan (PIPA Management Plan (2015-2020) GoK and its partners will base surveillance and enforcement on existing measures (e.g. fisheries, immigration and customs) and supplement these on a costed service-provider basis for the additional needs of PIPA with the aim of fostering a mutually supportive programme for Kiribati's tourism, fisheries development and management that is consistent with PIPA's Vision. With a dedicated patrol boat based in Kanton, the surveillance work programme will be greatly enhanced.**

#### **SAP 1.7 PIPA World Heritage**

In 2010 at the 36<sup>th</sup> World Heritage Committee's meeting, PIPA was inscribed UNESCO's world heritage site (Kiribati)(N1325). The Committee's decision (36 COM 7B.13) upon PIPA inscription notes the essential importance of the establishment and full capitalization of the Trust Fund to the long term conservation of the property, and requests Kiribati, with the support of its partners, to:

- a) Ensure the Trust Fund is fully capitalised, operational, and disbursing funds,
- b) Provide a *clear* financial plan outlining funds to be allocated for *core* management needs, including the proportion to compensate the State Party for the loss in tuna fishing licenses fees,
- c) Enable the extension of no-take zones for the property no later than 2014;

Considers that the envisaged future extension of the zonation, as requested by the Committee at the time of inscription as an essential requirement, should consider the Outstanding Universal Value of the property by establishing no-take zones in the areas of greatest ecological significance, and consider the level of threat posed to each zone from both legal and illegal resource extraction;

Also requests the State Party to submit to the World Heritage Centre by **1 February 2015** a report on the progress made with the management of the property, in particular measures addressing illegal and overfishing of inshore and offshore fisheries, prevention of the degradation of seamounts, extension, surveillance and enforcement of no-take zones and establishment of long-term sustainable financing of the property's management system, including the full capitalisation of the initial endowment of the Trust Fund for the property, for examination by the World Heritage Committee at its 39th session in 2015

Kiribati as a State Party have complied with the Committee's decision especially in the capitalization of the PIPA Trust and closing off the whole of PIPA a no-take-zone. By January 1, 2015, the entire PIPA area will be fully closed from any form of extraction activities with the exception of the designated artisanal fishing zone in Kanton including permitted research activities in PIPA. The progress report in managing PIPA will be submitted well before the 1 February deadline.

As a world heritage site, the Environment (Amendment) Act 2007 (Appendix 3) gives special recognition and protection to listed World Heritage sites (Section 48) with a fine provision of up to \$100,000 AUD and a maximum of 5 years in prison for an offence relating to a listed Kiribati World Heritage site (Section 28). A person who (a) carries out; or (b) is responsible for, directs, causes or allows the carrying out of, an activity requiring a PIPA Permit, without a PIPA Permit, commits an offence.

**SUMMARY: For this Plan (PIPA Management Plan (2015-2020 GoK will ensure to submit the progress report to the World Heritage Centre by 1 February 2015 in accordance with the WH Committee's decision upon PIPA's inscription including reporting requirements pursuant to Part V of the WH Operational Guidelines. WH fund support on capacity building, education and awareness and others will be sought.**

### **SAP 1.8 PIPA Partnerships, Transboundary and International Collaboration**

MELAD, and GoK more widely fosters, and leads a partnership strategy for the implementation of PIPA, to offset the limited resources and capacity in Kiribati to manage this large and remote site. PIPA was established by the GoK in a core partnership with CI and NEAq in 2008 under the first MOU signed between the parties. CI and NEAq remain committed to this partnership for the period of this Plan and have already provided US\$2.5 million contribution to match that of the GoK contribution to the PIPA Trust made in June, 2013. The Trust is established with the objective to sustain PIPA's management activities and its operation.

Partnerships and support for PIPA have been developed with the Governments of Australia, New Zealand, UNEP and the GEF Pacific Alliance for Sustainability. Kiribati is a member of regional agencies such as SPREP, Secretariat of the Pacific Community (SPC), Secretariat of the Pacific Islands Applied Geoscience Commission (SOPAC), Forum Fisheries Agency (FFA) and the Western and Central Pacific Fisheries Commission. These agencies all have

programmes relevant to PIPA that Kiribati can both benefit from and contribute to their implementation. Examples include SPREP's Regional Marine Species Conservation Programme (e.g. for turtles, whales, dolphins) and FFA's VMS programme, SPC MACBIO programme (on marine spatial planning).

The listing of PIPA as Kiribati's first listed World Heritage Site is Kiribati's priority commitment for international collaboration included in the PIPA Management Plan (refer SAP 1.7). PIPA is also managed as an IUCN Protected Area Wilderness Site (1b). PIPA is Kiribati's primary protected area commitment to implementing the CBD and is committed as part of the Global Islands Partnership (GLISPA).

PIPA have benefited through the partnership with UNEP under the GEF Pacific Alliance for Sustainability that had provided financial support of \$1 Million USD to implement the first PIPA Management Plan (2011-2014) focusing on (i) Core Operational (capacity, infrastructure, zonation, surveillance and enforcement, monitoring, evaluation) and Strategic Outcomes (atoll restoration, reverse fishing license, World Heritage site management, tourism, climate change adaptation), and (ii) the design and operation of PIPA's Sustainable Financing System

Key outcomes of transboundary and international collaboration in the first Plan include:

- Agreement of a proposed "sister-site" agreement with USA's Papahānaumokuākea National Monument (signed November 2009).
- Development of a Pacific Oceanscape under the Pacific Forum. In August 2009 the Pacific Leaders Forum endorsed a Pacific Oceanscape concept tabled by Kiribati together with its companion Pacific Ocean Arc initiative aimed at fostering increased investment in protected areas and needed transboundary and international cooperation. The Pacific Forum Secretariat and its Marine Sector Working Group had developed this initiative and now form part of the Pacific Plan's implementation. Networking and learning with other protected area initiatives e.g. the Coral Triangle Initiative and the Micronesia Challenge is envisaged under the Pacific Oceanscape.
- In August 2012 at the Forum's meeting in the Cook Islands, a Statement of Intent regarding cooperation between the United States of America and the Republic of Kiribati concerning the Pacific Remote Islands Marine National Monument (PRIMNM) and the Phoenix Islands Protected Area (refer attachment) was announced. Hillary Clinton, the U.S Secretary of State was present at the Forum. It stated "The Government of the Republic of Kiribati and the United States of America announced today their intention to identify areas of cooperation to facilitate the protection, preservation and management of the Pacific Remote Island Marine National Monument of the United States and the Phoenix Islands Protected Area of Kiribati". In realizing that commitment, the U.S through its Suva Embassy have provided the International Union of Conservation for Nature (IUCN) with funds to manage in support of three meetings between managers of PRIMNM and PIPA to come up with the cooperation agreement. The conclusions of the third final meeting held in Suva, Fiji in May 2014 requires Managers of the two sites to finalize the PRIMNM Cooperation Agreement and to continue in the sharing information, expertise and resources whenever possible. Also, IUCN is committed to host and facilitate future meeting of such when funds are available.

**SUMMARY: For this Plan (PIPA Management Plan (2015-2020) GoK will continue to foster its core partnership, transboundary and international programme for PIPA’s implementation. Like the PMNM, the PRIMNM-PIPA Sister Sites will finalize the Cooperation Agreement, develop a work plan, and to continue in sharing information, expertise and resources whenever available.**

### **SAP 1.9 PIPA Information Management, Education and Outreach**

The PIPA Office (MELAD, Tarawa) is the primary caretaker of all information, files and records pertaining to PIPA. These are backed up by records kept by both NEAq and CI and material deposited with the SPREP Library and Resource Centre in Apia, Samoa. To date more than 700 references have been sourced, digitized and organized in a searchable database for PIPA.

For this Plan, maintaining the high level of popular support among the Kiribati people is critical to securing the long-term political support for PIPA well beyond the term of the current Administration. Creation and operation of awareness-building materials and activities that communicate critical messages to PIPA’s stakeholders, including local communities and governmental organizations, as well as national and International communities includes:

- A biweekly newsletter is sent out with the Kiribati newspaper to subscribers and is posted online on the PIPA website.
- Curriculum development for the schools in Kiribati has begun and the significance of the conservation of PIPA is now being taught in all Kiribati schools under the topic of Culture and Community.
- Developing a PIPA overview that will be incorporated into the handbook used by all Kiribati schools.
- A weekly PIPA National Quiz on Thursday evenings that reaches all schools on Tarawa. Seventy-five percent of the questions included in the quiz pertain to PIPA and the related topics of conservation, sustainable fishing, environmental appreciation, climate change and its impacts on corals and fisheries, and sustainable development with examples including the PIPA Conservation Trust Fund arrangements and more. Other 25 percent of the quiz’s questions cover the general curriculum, such as English, Math, Science, Geography, etc.

For this Plan, it is crucial to keep the momentum in publicizing PIPA through awareness, education and outreach programmes for public support which is key for PIPA’s success. PIPA is many miles away from Kiribati capital island Tarawa so for this Plan, PIPA in terms of historical information, its values and resources will be brought to the Tarawa through the establishment of the PIPA House opposite MELAD on the lagoon side for easy access by school children, overseas visitors/tourist and the public at large. Posters, photos, PIPA islands’ historical information will be displayed including artifacts of Amelia Earhart. A minimal fee will be charged to the visitors/tourists.

Communication to the global community about the Phoenix Islands Protected Area has been undertaken by the Government of Kiribati and by all partners resulting in numerous articles in National Geographic and the publication of a book, *Underwater Eden*.

Communication efforts within and beyond Kiribati will continue through the UNESCO World Heritage Site, the Clinton Global Initiative, and international conferences and

meetings including the Pacific Conference on Nature Conservation and Protected Areas hosted by Secretariat of the Pacific Regional Environment Programme (SPREP) at the University of South Pacific, Suva, Fiji, IUCN World Parks Congress, and International Marine Protected Area Congress.

Further, the Government of Kiribati and partners Conservation International and the New England Aquarium will leverage their extensive networks and media relationships to share the results and successes of the Phoenix Islands Protected Area.

The establishment of a multipurpose PIPA House, to mimic the remote and isolated PIPA in urban Tarawa, serves as a Museum, a Conservation Learning Centre, a Conference Centre, Marketing, Strategic and Logistic Centre, and as a Classroom for PIPA Workshop and Training Centre will greatly enhance PIPA Outreach Programmes, locally and internationally.

**SUMMARY: For this Plan (PIPA Management Plan (2015-2020)), the MELAD PIPA Office will extend its PIPA's awareness programmes to the outer islands as well. Also, the PIPA and Curriculum Development Resource Centre (CDRC) will continue working on new Geography text book for senior forms using PIPA materials. The Outreach will continue its visits to all schools and to visit church groups and participating in the church events such as Easter and Christmas and New Year with the prime aim to instill in the hearts of all I-Kiribati that the PIPA Initiative is truly their own, they have responsibility in it as they are also its direct beneficiaries. Changing the mindset of our young people is another major goal so they know and practice the values of conservation and respecting the natural environment – for their own benefit and the good of all. The PIO will continue feeding and expanding the PIPA Facebook and website to reach out to subscribers and visitors within the region and beyond.**

#### **SAP 1.10 PIPA Science and Research**

The management of PIPA is based on the best available scientific and technical knowledge, and is in accordance with the Guiding Principles list above. Priorities for PIPA Science and Research will be those initiatives that provide insight and answers needed for practical management. All PIPA Science and Research activities will be reviewed by the PIPA Scientific Advisory Committee (SAC), which was formed in July 2014. The SAC is a small group of technical and regional experts formed to act as a scientific advisory body for PIPA. The SAC oversees the design and implementation of the PIPA Research Vision 2010-2020, and advises the PIPA Management Committee on the priorities for scientific research within PIPA. Operationally all science and research undertaken within PIPA will be operated on a permit basis (ref SAP1.4). The SAC will review all PIPA permits, proposals and technical reports, and advise the PIPA Management Committee on potential impacts of any proposed activity to the integrity of the ecosystem, and the conservation and management of PIPA.

#### **Mission**

The Scientific Advisory Committee (SAC) is a small group of technical and regional experts to act as a scientific advisory body for the Phoenix Islands Protected Area (PIPA). The SAC oversees the design and implementation of the PIPA Research Vision, and advises the PIPA Management Committee on the priorities for scientific research within PIPA. The SAC will review all PIPA permits, proposals and technical reports, and advise the PIPA Management

Committee on potential impacts of any proposed activity to the integrity of the ecosystem, and the conservation and management of PIPA.

**Duties of the SAC:**

1. To meet annually, subject to available funding, to review SAC objectives and guidelines, make membership decisions and review all science and new information on PIPA.
2. To report on outcomes of all SAC meetings to, and summarize the annual state of the science for, the PIPA Management Committee and other agencies as the need arises.
3. To oversee, guide and draft the Research Vision for PIPA.
4. To review and provide scientific advice on proposed activities, permits, and other concerns with regards to maintaining ecosystem integrity of PIPA, to the PIPA Management Committee.
5. To obtain external expert reviews, as needed, on various proposed activities if the necessary technical or regional expertise falls outside of the current PIPA SAC members.
6. To provide review and advice on the scientific aspects of the PIPA Management Plan, at the request of the PIPA Management Committee.

Science and research is seen as critical to enabling and informing aspects of SAP 1, 2 and 3 and will be built into these Strategic Action Plans.

PIPA Science and Research will also inform monitoring and evaluation to assess management effectiveness, and the information needed for the State of the PIPA report (SAP3), as overseen by the PIPA SAC. As far as possible, inter-disciplinary planning and multi-targets for monitoring and research will be undertaken due to the high expedition costs to PIPA. The 2014 PIPA Climate Change Vulnerability Scoping Study will be used as a guide towards climate-related management decisions.

**SUMMARY: For this Plan (PIPA Management Plan (2015-2020) science and research are seen as critical tools across many of the PIPA Strategic Action Programme initiatives. The PIPA Scientific Advisory Committee will uphold priorities as stated in the PIPA Research Vision 2010-2020, and will provide advice and guidance on all PIPA activities to the PIPA Management Committee based on current scientific knowledge to help meet priority management needs.**

**SAP 1.11 PIPA Tourism**

A lot of interest to visit the Phoenix Islands by tourists, particularly divers, has grown significantly with the UNESCO World Heritage site declaration and publicity surrounding PIPA. Tourism is seen as a potential source of sustainable income and employment, but will pose risks to PIPA if not sustainably developed and regulated efficiently. The preparation of the Kanton Sustainable Use plan in 2015 by a hired consultant in collaboration of the PIPA Tourism Advisory Committee and the PMC will ensure economic development and eco-tourism activities are done in a safe, sensible and sustainable manner.

In the Kanton mission report, some potential tourist sites have been identified such as long white beaches for sunbathing, colorful corals and fish assemblages in the clear blue lagoon good for snorkeling and diving, birds watching and even large open spaces good for setting up temporary remote radio stations by the amateur radio fanatics. For the last four years, apart from research expeditions made to PIPA, there had been occasional tourists trips to

PIPA operated by private live aboard luxury yachts owners mostly by a tour company, the Pacific Expeditions. The same boat is also used for rat eradication expeditions. Due to the improved outreach promotion programmes on the PIPA website, there has been a lot of interests to visit PIPA by tourists, mostly from Europe.

Access to Kanton, the main island in PIPA with a good runway is really key for the development of eco-tourism. The Kanton Mission report (August 2013) highlighted the need to open up the Kanton airport with some improvements work needed on the runway. This will form part of the Kanton Sustainable Use Plan.

The PIPA Tourism Advisory Sub-committee (PTASC) is established by the PMC at its meeting S-02-14, 28 August, 2014. The objective of the PTASC is to provide a sound and strategic advice to the PMC on matters related with PIPA eco-tourism to generate income and employment opportunities. Also, to provide advice on most effective marketing strategies to promote eco-tourism activities in PIPA. The PTASC is chaired by the Director of Tourism with membership represented government ministries including : Culture Division, Fisheries, Line & Phoenix Islands, Commerce, Environment, Attorney General's Office and PIO.

**SUMMARY: For this Plan, tourism development in PIPA, is consistent with PIPA's Vision and with the new Kiribati National Tourism Strategy seen as a high priority for implementation. The consultant will work closely with the Ministry of Tourism and the PIPA Tourism Advisory Committee and PIO in preparing the Kanton Sustainable Resource Use Plan. In this Plan, the fee for the PIPA Permits and Environment License will be reviewed including the associated conditions for adoption in 2015. A database on visitors to PIPA will be established from the Kanton arrival forms.**

#### **SAP 1.12 Kanton Atoll Sustainable Resource Plan and Community Welfare.**

At present, Kanton Atoll is the only PIPA island currently inhabited. The population consists of government Caretakers - a Policeman representing the Office of the President and an Officer-In-Charge on Kanton, a Nurse (Ministry of Health and Medical Services), two Primary Teachers (Ministry Education, Youth and Sports Development), and a Meteorological officer (Ministry of Communications, Transport and Tourism Development). In addition, the PIPA Kanton Coordinator and PIPA Kanton Assistant will be stationed on Kanton as soon as the construction of their living quarters and the PIPA Office are completed. The Policeman is responsible to carry out duties concerning immigration & customs, fisheries and all government interests and roles in the Phoenix Islands. However, the Policeman will be relieved from these duties when these key ministries have got their own representatives stationed on Kanton. Currently the population is around 30 people but will further increase to about 40 people during the Plan period. The Kanton community by necessity relies on both marine and terrestrial resources for subsistence needs.

In this Plan, the community will be allowed to fish at designated zones in the lagoon and ocean stretching 12nm outward (refer Map -Kanton Restricted Use Zone). Fishing however, is not allowed at key vulnerable sites such as lagoon mouths to protect spawning aggregations of fishes and at sites with tabular Acropora coral community which is very sensitive to any change in water temperature. Nesting areas for turtles, birds, coconut crabs and cultural sites will be mapped out for protection, including potential tourist's sites.

As a world heritage site, people wishing to visit their relatives in Kanton via ship or plane should apply for the Kanton Permit (Booma Ibukin Kariaiakan Te Roko iaon aban

PIPA)[Appendix 4]. A person entering without a permit is liable to a fine of \$100,000 or five years imprisonment. Besides, the Kanton Community Agreement [Appendix 5] was adopted with the objective to maintain peace and order on the island, create food security, and for the preservation and protection of PIPA's resources including natural heritage and cultural sites is currently enforced. The PIPA's near pristine environment should be maintained at all times thus require the community support and by visitors as well.

The PIPA Kanton Coordinator will be responsible for the daily operation of the Kanton PIPA Office and to oversee the implementation of the Kanton Atoll Resource Use Plan, to work closely with the community for compliance to the Kanton Community Agreement. Also to ensure all visitors should have the necessary PIPA Permits when visiting the PIPA islands. A database will be developed for PIPA visitors to be able to determine the carrying capacity and that of the least acceptable change to ensure zero impact on PIPA's intact environment is maintained.

**SUMMARY: For this Plan, tourists including local people travelling to Kanton should have the PIPA Permit being Kanton is the gateway to all the rest of PIPA islands. A database on visitors to PIPA will be established. The tasks/activities identified in the Kanton Atoll Resource Use Plan will be carried out in close consultation with the PIPA Kanton Coordinator and the main PIO Office in Tarawa.**

#### **SAP 1. 13 PIPA Monitoring and Evaluation**

Monitoring and evaluation are key to measuring the management effectiveness of marine protected areas, both to ensure that management is adaptive, and to address new issues and threats as they may arise. Section 45(1)(f) and 48(4)(d) of the Environmental Act 1999, as amended, requires scientific and research studies to support protected areas and World Heritage sites, respectively, in Kiribati. Section 6(2)(d) and Section 6(6) of the PIPA Regulations 2008 requires that the PIPA Management Committee requires that a monitoring and evaluation programme be developed and implemented to ensure PIPA, in accordance with the Environment Act, PIPA Regulations, and PIPA Management Plan, is reaching its conservation objectives. The PIPA Director ensures that copies of all data and survey reports are provided to the PIPA Management Committee as a condition of all approved research permits. A copy of all data and records are housed within the MELAD PIPA Office.

Several terrestrial and marine surveys have been conducted over the past decades in the Phoenix Islands. However, since the methodologies used by researchers were different, it is difficult to compare results over time to measure changes to these resources. Another difficulty in past surveys is that many were not quantitative. With this Plan, work will continue on standardizing quantitative methods for each key species or group of organisms so that results will be comparable over time. The standardization process will draw heavily from existing methodology used by PIPA MC and consistent with those promoted by regional agencies e.g. SPC Fisheries.

Specifically, the PIPA Regulations (2008) require monitoring of the following environmental and management indicators:

- i. Bird population trends;
- ii. Ecosystem/vegetation monitoring;
- iii. Live coral cover trends;

- iv. Selected reef fish population trends;
- v. Reef shark population trends;
- vi. Turtle population trends;
- vii. Pelagic conditions within the PIPA, including fisheries landing trends;
- viii. Annual visitor number trends; and
- ix. Such other matters as the PIPA MC shall choose to report.

#### *Scientific Monitoring*

Existing monitoring since the establishment of PIPA has included:

- Water temperature loggers and monitoring of coral reefs (both fish and corals) pre- and post-coral bleaching;
- Assessment and follow up monitoring of key seabird and invasive species populations (as part of an atoll restoration programme);
- Marine and terrestrial surveys and observations as part of boat visits to PIPA; and
- Ongoing surveillance of Kiribati's EEZ (inclusive of PIPA).

Information and effort cost from existing monitoring efforts will be factored into an integrated monitoring programme under this Plan.

A full Monitoring and Evaluation Plan will be developed and agreed by the PIPA Management Committee not later than December 2015 and requirements will be reflected in the PIPA Annual Operational Work Plans. Currently a 2014 State of the PIPA is being finalised, which will inform the monitoring and evaluation process (ref SAP 3). The remoteness of PIPA makes it challenging to implement annual monitoring programmes due to financial and logistical constraints. It is recommended that data be collected on key indicators (listed in Tables 3.1 and 3.2) every three to four years, as funding allows, and also measured opportunistically as part of research permits, other surveys, and visitor programmes to the site. With the recent appointment of a PIPA staff to be based in Kanton, a number of indicators can be measured more frequently on this atoll. Further, with the inception of the PIPA Scientific Advisory Committee (SAC) in 2014, there now exists a dedicated group of scientists to centralize incoming data and evaluate findings to inform the above indicators (i – ix).

Actual field work will be contracted out and/or completed in collaboration with various Ministries, agencies and partner organizations under the direction of the PIPA Management Committee and PIPA Director. All opportunities for local capacity building in these surveys will be taken, to benefit Kiribati more widely. The Kiribati Wildlife Conservation Unit (WCU) of MELAD will oversee bird and invasive species surveys in PIPA.

#### *Management Plan Implementation Monitoring*

Based on the PIPA Annual Operational Work Plan the implementation of the PIPA Management Plan will be monitored by the PIPA Office and the results will be annually reported and evaluated under the PIPA Annual Operational Work Plan requirements.

#### **Actions for 2015-2020:**

1. Key indicators drafted in Appendix 6 reviewed by the PIPA Scientific Advisory Committee and finalized by June 2015;
2. The adoption of the IUCN World Commission on Protected Areas Management Effectiveness Evaluation Framework – a basis for Developing Monitoring and Evaluation Programs to Assess Management of Protected Areas,

3. Design of an Monitoring and Evaluation framework to assess the management effectiveness of PIPA, that includes management and outcome indicators
4. Conduct an assessment of management effectiveness in years 2, 4, and 6 of the PIPA Management Plan, and adapt management accordingly.

No Summary on SAP 1.13?

### **SAP 1.14 PIPA Sustainable Financing, Resourcing and Business Plan**

PIPA is currently financed by GoK, CI and NEAq with additional partnership and resources obtained from a variety of government, multilateral and private agencies.

A key component of PIPA's sustainable financing was the enactment by the Kiribati Parliament of the PIPA Conservation Trust Act 2009, also known as the Rawaki Act 2009. By the provision of this Act, the PIPA Trust Board was constituted in 2010 comprising representatives from the government of Kiribati, Conservation International and New England Aquarium.. Pursuant to the provisions of this same Act, the PIPA Trust Board signed a Conservation Agreement (CA) with the government of Kiribati in April 2014. One of the key provisions of this CA is the need for the PIPA Trust to compensate the government of Kiribati for loss in fishing access fees as a result of the closure of PIPA to commercial fishing by DWFNs. However, the payment of such compensation is contingent upon the outcome of a study to be undertaken by a Tuna Working Group (TWG) – a body agreed by both parties to be established to assess the potential loss (if any) in fishing revenues accruing to Kiribati as a result of the closure of PIPA to commercial fishing. The group will monitor patterns and revenues from tuna fishing in Kiribati EEZ subsequent to the full and effective closure of PIPA and prepare an analytical report no later than five years after PIPA has been effectively closed to tuna fishing, documenting the impact of closure on revenues to Kiribati. The outcome of this TWG study will determine a mutually agreeable approach to calculating any estimated conservation fee (compensation) associated with PIPA's full closure.

Due to significant resourcing requirements associated with fully capitalizing the trust at a level that will immediately cover all associated costs of PIPA, the PIPA partners (Government of Kiribati, Conservation International and New England Aquarium) have teamed up to structure global financial support for the capitalisation of the endowment. To this end, the PIPA Trust Fundraising Framework was developed in 2011 which set out the various opportunities and strategies that the PIPA partners can explore and employ to increase PIPA's funding base and attract external funds for the capitalisation of the PIPA Trust Fund. The Framework will inform and guide fundraising activities. The overall goal of this fundraising campaign is to raise US\$25 million, with an interim target of US\$13.5 million by 2014, to capitalise the Trust.

To date, Conservation International and the Government of Kiribati have each contributed \$2.5 million to the endowment, so the trust has \$5 million as a starting base. These contributions, together with contributions from other donors, is being invested in an endowment fund managed by a qualified investment manager appointed by the PIPA Trust Board.

More recently, the Waitt Foundation and Oceans 5 Alliance have jointly agreed to provide a grant to PIPA of \$1 million per annum for 5 years to support the implementation of the PIPA Management Plan

For this Plan it is also fully expected that additional resources will need to be secured, on a prioritized basis of supporting firstly PIPA core management followed by targeted activities under the issues and results programme (SAP2). In this regard the following partnerships and resources are being pursued:

- CI/NEAq – ongoing support from the Global Conservation Fund of Conservation International (GCF) and other sources estimated at \$500,000/5 years
- 
- Government of Taiwan of \$2 million
- Government of New Zealand of \$2.5 million
- Government of Australia of \$2.5 million.
- Prince of Monaco Foundation \$2 million

Discussions are also underway with a range of potential donors and partners including the Governments of Japan, Korea, Commonwealth Secretariat, Nordic countries and European Union.

Against the framework of this PIPA Management Plan, a PIPA Business Plan has been developed led by the PIO Director under the guidance of the PIPA MC, and under the approval of the Principal Environment Officer and MELAD Minister. This will aim to effectively manage fund raising and resourcing of PIPA's Management Plan implementation and as a companion to this Plan. Its yearly priorities will be reflected in the PIPA Annual Operational Work Plan and reported on in the same manner (ref 4.1.13).

**SUMMARY: For this Plan (PIPA Management Plan (2015-2020)) the PIPA Annual Operational Work Plan and associated budget will reflect the resourcing needs on an annual basis. For the longer term a companion PIPA Business Plan to this Plan will be developed no later than October 2015 that will fully address the needs and issues arising for the effective resource operation of the PIPA.**

#### **SAP 1.15 PIPA Annual Operational Work Plan and Report**

On an annual basis the PIPA Director under the guidance of the PIPA MC and under the approval of the Principal Environment Officer will prepare a PIPA Operational Work Plan that clearly identifies PIPA work to be carried out in that year in relation to the PIPA Management Plan.

These work plans will identify specific activities, budgets, secured/unsecured resources and partnerships for undertaking the PIPA Core Management Programme (SAP1) and activities and desired targets identified under the PIPA "Issues and Results" Action Programme (SAP2).

In the last year of the Plan and based on an agreed framework under the PIPA Monitoring and Evaluation programme the PIPA Annual Operational Work Plan will include a significant focus on completion of the five yearly "State of the PIPA" report (SAP3).

Prior to the development of subsequent years PIPA Annual Operational Work Plans, the PIPA Director will prepare a report on implementation progress of the current plan emphasizing achievements, targets completed, costs and issues arising for the next work plan.

Importantly each PIPA Annual Operational Work Plan and subsequent implementation report will clearly identify performance indicators consistent with achieving on an annual basis the requirements of the Conservation Contract and thus through the PIPA Trust Board's review the flow or endowment derived income dedicated to the management costs of PIPA.

**SUMMARY: For this Plan (PIPA Management Plan (2015-2019)) the PIPA Director under the guidance of the PIPA MC and approval of the Principal Environment Officer will produce an annual PIPA Operational Work Plan. At the end of each year an Annual Report of its implementation will be produced by the PIPA Director prior to the development and agreement by the PIPA MC and Principal Environment Officer of subsequent years plans.**

## **SAP 2. PIPA 'ISSUES TO RESULTS'**

In addition to the core management requirements outlined above a number of key prioritized issues for PIPA requiring targeted action are identified for this PIPA Management Plan. For each 'issues to results' a summary end desired target state is identified for this Plan, the baseline status of the issue summarised as at January 2015, and a series of actions outlined. The PIPA funding proposal has been submitted to Ted Waitt Foundation to support certain key management activities. The rest of the activities will be financed from other sources. For each of these 'issues to results' programs detailed work plans and budgets will developed as part of the PIPA Annual Operational Work Plan. Implementation progress in each will be reviewed as part of the core PIPA Monitoring and Evaluation and implementation subject to adequate resourcing. Design and implementation of these initiatives will be synergistic across the PIPA effort combining resources, accessing expertise, and maximizing efficient and coordinated effort and use of funds available. Importantly work undertaken in the programmes below will contribute to SAP 3 – State of the PIPA Report. Identified PIPA 'issues to results' programmes are:

- **SAP 2.1 PIPA Atoll& Reef Islands Restoration & Biosecurity**
- **SAP 2.2 PIPA Coral Reefs and Coastal Management**
- **SAP 2.3 PIPA Endangered and Threatened Species**
- **SAP 2.4 PIPA Offshore Fisheries**
- **SAP 2.5 PIPA Cultural and Historical Heritage**
- **SAP 2.6 PIPA Seamount & Deep Seas**
- **SAP 2.7 PIPA Climate Change**

### **SAP 2.1 PIPA Atoll& Reef Islands Restoration & Bio security**

*Target:* by the end of 2020, to recover the native island biota (seabirds) on 4 PIPA's remaining untreated islands with rat bait, including verification visits to at least two of the pest-free islands to check on their biota status and to redo the rat eradication on Enderbury where the initial work failed. The untreated islands include Kanton, Nikumaroro, Orona and Manra. Monitoring, control and enforcement of PIPA Biosecurity protocols to prevent IAS landings in PIPA will continue throughout the plan period.

#### *Baseline:*

Terrestrial threats to the PIPA are dominated by the impacts of invasive alien species (pest plants and pest animals). Of the pests, the invasive mammals are currently the most impacting as they can change entire ecosystems and eliminate many species of vertebrates, particularly

birds, in the PIPA. The presence of mammalian species on all of the islands in recent decades has resulted in greatly depleted flora and fauna, including to the threatened and sensitive seabirds such as Phoenix petrels (Endangered IUCN Red List category (EN)), white-throated storm-petrels (Vulnerable IUCN Red List category (VU)) and blue noddies. Their declines, together with those of more common seabirds, have led to degraded ecological processes that formerly linked the terrestrial and marine ecosystems. For example, the nutrient levels feeding the coral reef and ocean systems are now greatly reduced because of the extensive declines in the size of seabird colonies. Other more complex interactions are likely to include the failure of colonies of frigate birds (two parasitic species locally) due to pest-induced failures of colonies of other seabird species on which they depend. Meanwhile, browsing rabbits and rats have caused the loss of nesting cover for petrels, storm-petrels, noddies, shearwaters, terns etc.

The potential for restoration of these islands is however very high as they each support only 1-3 pest mammal species and few other pests. All except one of the islands are uninhabited and most are difficult to land on from boats. These features mean that there is little likelihood of new invasive species arriving and high efficacy to a well-designed biosecurity programme. Recovery of species is likely to occur at high rates compared with other inhabited islands in Kiribati and the Pacific generally.

The SAP PIPA Atoll Restoration initiative has the primary purpose to restore the entire terrestrial ecosystem of the PIPA islands through the removal of pest mammals. An important companion initiative is implementation of the PIPA Biosecurity programme which aims to ensure these islands are maintained in a pest-free state following the eradications. PIPA Biosecurity planning and implementation will address all of the potential invasive species that could arrive, including mammals, ants and other invertebrates, reptiles, mynas and pest plants.

#### Completed eradication work

In 2008 a NZAID-funded eradication programme successfully eradicated IAS on Rawaki (rabbits) and McKean (Asian rats). It had also been planned to remove Pacific rats from Birnie at that time, but that eradication was not attempted because of safety concerns, and the bait was subsequently used by Government of Kiribati staff to target rats on Kiritimati islets (Pierce and Brown 2009).

In 2011 Enderbury and Birnie were treated for Pacific rats. The operation went smoothly (Brown 2011, Pierce and Brown 2011) and Birnie succeeded in eradicating rats but Enderbury failed (Pierce and Kerr 2013).

#### Recommended future IAS eradication work at PIPA

The Tables below summarize the key ways forward in restoring the PIPA islands. The two northern islands Kanton and Enderbury should have their cats and rats targeted next – both are arid islands with manageable risks in relation to *Coenobita* crabs. The southern islands present some tactical difficulties in IAS eradication as they support indigenous forest and localized coconut plantations with associated high numbers of *Cardisoma* and other crabs which are voracious consumers of bait. Meanwhile, Kanton biosecurity needs to be fully effective before that island's eradications take place. Steps are already in place internally (Kiribati freighter biosecurity) or planned (fishing vessel biosecurity and monitoring) to address these issues (Eco Oceania Pty Ltd 2010).

### **Table 3.1 – past and recommended pest mammal eradications at PIPA**

**Bold = IAS removed 2008, \* = failed 2011 operation, *Italic*= stage 3.**

Island	Pest status 2010	Comments
<b>Rawaki</b>	<b>Rabbits (targeted 2008)</b>	<b>50 ha land area. Eradication successful Dec 2009</b>
<b>McKean</b>	<b>Asian rat (targeted 2008)</b>	<b>27 ha. Eradication successful Nov 2009</b>
<b>Birnie</b>	<b>Pacific rat (targeted 2011)</b>	<b>50 ha. Eradication successful May 2013</b>
*Enderbury	*Pacific rat (targeted 2011)	*545 ha. Very high values. Eradication failed
<i>Kanton</i>	<i>Cat, two Rattus spp.</i>	<i>816 ha. Inhabited. Some relict seabird</i>
<i>Orona</i>	<i>Cat, Pacific rat</i>	<i>635 ha (Google Pro). High values; crab issues</i>
<i>Nikumaroro</i>	<i>Pacific rat</i>	<i>c.400 ha. High values; crab issues</i>
<i>Manra</i>	<i>Cat, two Rattus spp?</i>	<i>c.500 ha.</i>

Tactical approach to eradications and costs

The operations on Rawaki and McKean Island involved hand-spreading of bait, and shooting any surviving rabbits on Rawaki. The approach for Enderbury and Birnie rat eradications involved rodenticide baits containing the anticoagulant brodifacoum being spread over the islands from a helicopter. Helicopters were operated from helipads on the MV Aquila. This 2011 operation was in collaboration with Island Conservation's and RSPB's rat operations on Palmyra and Henderson Island respectively with Palmyra treated in June, Enderbury-Birnie in July and Henderson in August-September 2011. It is proposed that the remaining islands at PIPA be treated in the same way involving aerial application of rat bait and cat hunting follow-up on the ground. A potential timetable and standalone costs for these subsequent PIPA eradications is tabulated below.

**Table 3.2 – Possible timetable and draft costs of PIPA IAS removals. Eradications in bold.**

Year	Task	Comment	Approx cost \$US
<b>2011</b>	<b>Enderbury/Birnie rat eradication</b>	<b>Aerial application of baits July 2011</b>	<b>c. 800,000,</b>
2011-13	Plan Kanton and Southern islands rat/cat work	Operational planning for Kanton completed	<10,000
2013	Check Enderbury, Birnie success	Survey completed (Enderbury failed, Birnie succeeded), biota reports drafted, begin fund-raising next eradications	c.100,000
<b>2016+</b>	<b>Eradicate rats &amp; cats on Kanton, rats on Enderbury</b>	<b>Need funds raised by mid 2015 (note could consider 2015 if funds raised by Sept 2014)</b>	<b>c.2 million</b>
2017+	Check Kanton, Enderbury	Kanton by staff, Enderbury potentially via Patrol boat any month	GoK staff time
<b>2018+</b>	<b>Eradicate rats +/- cats on 3 southern Islands</b>	<b>Midyear. After poisoning rats, cats are trapped and hunted using dogs on Manra, Orona</b>	<b>c.3 million</b>

*PIPA Biosecurity Advisory Committee (PBAC):*

The PIPA Biosecurity Advisory Committee is established by the PMC at its meeting S-02-14, 28 August, 2014. To provide advice on biosecurity and pest animal and plant management issues to the Phoenix Islands Management Committee (PMC) through sharing of information and engagement with stakeholders. The PBAC is chaired by the Director Agriculture and members comprising of the Director Environment and Conservation Division, Director Fisheries Division, General Manager of the Kiribati Shipping Line company, Health Inspector and PIO representative. External advise from regional bodies such as the Secretariat of the Pacific Commission, SPREP, and other relevant bodies and private consultants/companies may be sought when needed.

*2015-2020 Actions:*

- Deployment of rat baits on all vessels departing for Kanton from Tarawa and Kiritimati.
- Monitoring and control of the yellow crazy ants and other invasive species on all vessels departing or Kanton from Tarawa and Kiritimati.
- Verification visits to Rawaki, McKean and Birnie to check on the island native biota.
- In 2016, eradication of rats and cats on Enderbury and Kanton;
- Verification visits to Enderbury and Kanton (by PIPA staff on patrol boat trips);
- Eradication of rats and cats on Orona, Manra and Nikumaroro.

**SAP 2.2 PIPA Coral Reefs and Coastal Management (out to 12 nautical miles).**

*Target:* By 2020 PIPA's coral reefs and coastal habitats around 7 of the 8 PIPA atolls and reef islands will have been fully protected for 10 years and are recovering from past unsustainable practices and climatological impacts (e.g., shark finning, and bleaching-related coral mortality). Long-term monitoring will contribute to the understanding of how resilient PIPA's reefs are from climate-change induced coral bleaching.

Further climate change adaptation measures as recommended by SAP2.7 Climate Change programme will be assessed and implemented as resources allow.

*Baseline:*

The shallow coral reefs of PIPA are among the least disturbed coral reefs in the world, as their remoteness has largely shielded them from direct anthropogenic impacts. Currently more than 200 coral species have been recorded in the PIPA but undoubtedly many more deep water coral species associated to seamounts remain unidentified within PIPA. The reef system is so remote and untouched by local human activities that it can serve as a benchmark for understanding global threats to hard coral ecosystems, potentially providing guidance for recovery potential and successional processes on reefs. The Phoenix Island reefs provide a model of what atoll reefs in this part of the Pacific Ocean are like when faced climate change induced stresses such as high temperatures, coupled with minimal human disturbance. Thus, the PIPA coral reefs offer a unique opportunity for coral reef research and conservation which is important on an international scale.

Most coral reefs have been listed as threatened or near-threatened as a result of global warming. PIPA, lying in the equatorial Pacific where ENSO cycles are generated, provides a unique geographic location for acclimatization to, and/or recovery from, warming temperatures in corals. The relatively fast recovery of coral cover in PIPA following the unprecedented warming in 2002-2003, and the subsequent warming in 2010, suggests this

region may hold a key role in the long term adaptation and survival of coral species. Their ability to regenerate, while dependent on larval supply due to extreme isolation, is nonetheless much better than on reefs in more populated areas due to the general lack of other environmental stresses on the reefs. This provides an important opportunity to research and understand climate change impacts on coral reef systems in the virtual absence of other anthropogenic factors.

PIPA also contains nationally, regionally and internationally important assemblages of species associated with coral reef and lagoon systems. Of note are clams, fish and sharks, which are summarised below.

The Kanton and Orona lagoons host spectacular giant clam (*Tridacna maxima* and *T. squamosa*) communities in sizes rarely seen elsewhere in the world. The density of these giant clams in Orona lagoon is an outstanding feature of PIPA and augurs well for the long term conservation of this increasingly threatened species.

Currently 518 shallow reef fish species are recorded from PIPA while several remain unidentified. A formula for predicting the total reef fish fauna based on the number of species in six key indicator families (Allen, unpublished data) indicates that at least 576 species, over 50 more than currently listed, can be expected to occur in the coastal reef ecosystem of PIPA. While species diversity is consistent with expectations of relatively pristine central Pacific reefs, PIPA is outstanding for the extraordinary abundance and size of fish, indicative of the high habitat quality and low level of disturbance and exploitation.

Many fish species in PIPA are seen in exceptional sizes and occur in much higher densities than occur in many other localities in the Indo-Pacific region, noteworthy species including surgeonfishes (Holocentridae), *Eviota* (Gobiidae), and *Trimma* (Gobiidae) (*Acanthurus guttatus*, *A. nigricans*, *A. triostegus*, *A. xanthopterus*, *Naso literatus*, and *Zebrasoma veliferum*) and parrotfishes (*Hipposcarus longiceps* and *Scarus ghobban*) further testimony to their general lack of exploitation and habitat quality occasioned by remoteness and formal protection. All of these species can be readily sighted in extraordinarily large aggregations in PIPA. Especially noteworthy are the huge spawning aggregations of longnose parrotfish (*Hipposcarus longiceps*) found at Kanton and large shoals (>200) of the threatened Bumphead Parrotfish (*Bulbometopon muricatum*) (VU) seen on most dives at Orona, both in the lagoon and on outer reefs (Allen and Bailey). The lagoon at Orona is also notable for its population of juvenile Napoleon Wrasse (*Cheilinus undulatus*) (EN) thus providing a safe breeding area for this globally endangered species. Overall, the Phoenix Islands population of Napoleon Wrasse (*Cheilinus undulatus*), usually a good indicator of absence of local fishing pressure, is exceptional compared to other internationally recognized marine hotspots surveyed in the Indo-Pacific region by CI.

PIPA hosts a large proportion of regional (Central Pacific) and local endemic species, species new to science (Allen and Bailey), and unusual species assemblages. Spectacular mass spawnings by parrotfish and wrasse species have been observed and documented within PIPA. The near-pristine coral reefs provide important protected habitat for populations of higher predators such as sharks.

Recent observations show that PIPA reefs are highly vulnerable to iron enrichment from shipwrecks, which can cause widespread mortality of corals and conversion to an algae-

dominated state. Nutrient enrichment is also well known to have adverse impacts on reefs. Better understanding of these risks will be useful for managing impacts locally.

Currently, the only domestic reef fisheries are associated with subsistence fishing on Kanton in connection with the administrative settlement on the atoll. This level of harvest is minimal and will be managed through the Kanton Sustainable Resource Use Plan. There are no other domestic commercial fisheries on PIPA reef resources, and the majority of PIPA is scheduled to be zoned as no-take as of January 1 2015, further ensuring the protection of the reefs and their surrounding waters. Because there may be linkages between shallow reef ecosystems and surrounding pelagic ecosystems, the upcoming closure will further enhance PIPA as a natural study site to determine the interplay between them.

*2015-2020 Actions:*

- Full protection of coral reefs and coastal habitats and associated species will continue to be implemented around 7 of the 8 PIPA Atoll and Reef Islands out to 12 nautical miles, with additional full protection extended to all of PIPA except for Kanton.
- The Kanton Atoll Sustainable Livelihoods/Conservation and Sustainable Resource Use plan will be taken into consideration in its development and implementation maximizing effective conservation of Kanton's coral reefs, coastal habitats and associated species out to 12 nautical miles whilst ensuring that the subsistence needs of the local Kanton Atoll caretaker population are met. The 7 remaining islands and their associated reefs are not zoned for development, and thus their coral reefs and coastal habitats should remain free from local anthropogenic impact.
- Recovery from previous unsustainable practices, e.g., shark finning, and meteorological impacts, e.g., coral bleaching, will be monitored and related recommendations for improving management from other SAPs e.g. Climate Change, Endangered and Threatened Species programmes will be made.
- License conditions prohibiting domestic commercial fishing on the PIPA coral reefs will continue to be included in all domestic commercial fishing licenses.

**SAP 2.3 PIPA Endangered and Threatened Species**

*Target:* by the end of 2020, further improvement on the population of PIPA Endangered and Threatened Species would have been achieved on the rat-free islands including other neighbouring PIPA islands. Further, the PIPA Monitoring and Evaluation Programme will enable detection of trends in these species and the threats facing them in order to improve management interventions designed to improve their conservation status.

*Baseline situation:* Protected Species have been prescribed by the Wildlife Conservation Ordinance 1975. The current situation with regard to species protection in the Phoenix Islands is presented below drawn from existing laws and regulations and measures including management measures. . The current IUCN Red List for Kiribati/PIPA is given in Appendix 7.

**Birds** -. In Schedule 1 of the Wildlife Conservation Ordinance, fully protected birds are listed in the Table below:

Table 3. List of Protected Birds.

Local Name	English Name	Scientific Name
1. Te Eitei, Katafa	Great Frigatebird	<i>Fregata minor</i>

2. Te Eitei	Lesser Frigatebird	<i>Fregata ariel</i>
3. Te Taake	Red-tailed Tropicbird	<i>Phaethon rubricauda</i>
4. Te Ngutu	White-tailed Tropicbird	<i>Phaethon lepturus</i>
5. Te Mouakena	Masked or Blue-faced Booby	<i>Sula dactylatra</i>
6. Te Kibui	Brown Booby	<i>Sula leucogaster</i>
7. Te Kota, Makitaba	Red-footed Booby	<i>Sula sula</i>
8. Te Korobaro	Wedge-tailed Shearwater	<i>Puffinua pacificus</i>
9. Te Tinebu	Christmas Island Shearwater	<i>Puffinus nativitatis</i>
10. Te Nna	Audubon's Shearwater	<i>Puffinus lherminieri</i>
11. Te Tangiuoua, Ruru	Phoenix Petrel	<i>Pterodroma alba</i>
12. -	Bulwer's Petrel	<i>Bulweria bulwerii</i>
13. Te Bwebwe ni marawa	White-throated Storm-Petrel	<i>Nesofregata albigularis.</i>
14. Te Tiriwenei	Pintail Duck	<i>Anas acuta</i>
15. Te Kaai	Reef Heron	<i>Demigretta sacra</i>
16. Te Mangkiri, Takiri	Black or White-capped Noddy	<i>Anous tenuirostris</i>
17. Te Kunei, Io	Brown or Common Noddy	<i>Anous stolidus</i>
18. Te Raurau	Blue-grey Noddy	<i>Procelsterna caerulea</i>
19. Te Tarariki, Kereekere	Sooty Tern	<i>Sterna fuscata</i>
20. Te Tarangongo	Grey-backed Tern	<i>Sterna lunata</i>
21. Te Kiakia	Black-naped Tern	<i>Sterna sumatrana</i>
22. Te Karakara	Crested Tern	<i>Thalasseus bergii</i>
23. Te Matawa	White or Fairy Tern	<i>Gygis alba</i>
24. Te Kun	Pacific Golden Plover	<i>Pluvialis fulva</i>
25. Te Kitiba, Kolili	Rudy Turnstone	<i>Arenaria interpres</i>
26. Te Kewe	Bristle-thighed Curlew	<i>Numenius tahitiensis</i>
27. Te Kiriri	Wandering Tattler	<i>Heteroscelus incanus</i>
28. Te Kaka	Bar-tailed Godwit	<i>Limosa lapponica</i>

Corals – over 1/3 of scleractinian corals are listed as Threatened on the IUCN Red List, and all species are vulnerable to climate change due to rising temperatures and acidification. Actions under SAP 2.2 will include species-related measures to maximize their protection.

Turtles – Previously under the Wildlife Conservation Ordinance, green turtles - their eggs and nests, were protected in most of the Phoenix Islands, excluding Kanton and Enderbury. According to Pulea and Farrier (1993), the green turtle was fully protected in the following designated areas: Birnie, Nikumaroro (Gardner), Orona (Orana, Hull), McKean, Rawaki (Phoenix), and Manra (Sydney). Prohibited acts included: (1) hunting, killing or capturing, (2) possession of any part, (3) searching for, taking, or wilfully destroying or damaging eggs and nests, and (4) possession, acquiring, selling or giving eggs or nests. Pulea and Farrier (1993) note that green turtles were protected on certain Phoenix Islands, but were not protected at sea. Other marine turtles were protected on land by Section 7 of the Wildlife Conservation Ordinance (Pulea and Farrier 1993). Hunting, capture, and killing other marine turtles while on land were prohibited without a permit. However, like the green turtle, they were not protected at sea. By January 1, 2015, PIPA entire area will be designated a no-take-zone thus turtles and other endangered marine species will be protected.

Under this Plan all turtle species are fully protected throughout PIPA except for current take for subsistence purposes by the local Kanton caretaker population for turtle harvest from Kanton Atoll only. However, zones for fishing by the Kanton community will be allocated under the Kanton Atoll Sustainable Resource Use Plan the sustainability..

Tuna – Under this Plan, PIPA entire area of 407,112sq.km will become by January 1,2015 a no-take-zone thus may improve the tuna stocks within and beyond PIPA waters. In addition, the adoption of the Vessel Day's Scheme (VDS) scheme and banning of Fishing Aggregation Devices by the Pacific Islands including Kiribati would be advantageous to the health of bigeye and yellowfin stocks. Both the VDS and ban of FAD fishing are both targeting to reduce incidental catch of these tuna species at their young stage.

Bonefish – Under the Fisheries Ordinance, the catching of bone fish in the PIPA was strictly regulated in 2005, restrictions include method (gear type) and amount of catch, catch and release and fees for tourism fishing.

Other terrestrial and marine biota – the baseline situation in the previous Plan, all biota, terrestrial and marine, is fully protected in and out to 12 nautical miles for seven of the eight PIPA atolls/ reef islands. Certain marine and terrestrial species which are endangered have been identified in the PIPA research. For this Plan, management measures for the Phoenix petrel, the white-throated petrel including green turtles, sharks, tabular Acopora corals are addressed under the SAP.1.14 Kanton Sustainable Resource Plan. There is a need to protect the endangered bird species and cetaceans travelling through PIPA under the PIPA Regulations.

*2015-2020 Actions:*

- Establishment of No-Landing signs on the rat-free islands including Rawaki, McKean, Birnie and Enderbury only after rat eradication on this island.
- Monitor presence and trend of the endangered Phoenix petrel, &white-throated storm petrel, bristle-thighed curlew if increased the Line islands & Gilberts (need baseline data on these group of islands).
- The contribution of PIPA to maintaining populations of the above species and how this may help protecting/restoring and where appropriate using these species in the Gilbert and Lines island groups will be identified and built into national programmes for protecting and using threatened species.
- Conservation and management measures on the endangered and vulnerable bird species including marine species such as Napoleon wrasse, green turtle, and others incorporated under clause 9 of the PIPA Regulations 2008 and enforced. With the recent demand of ray species for medicinal use, there may be a need to consider protecting it.
- Protection of the endangered birds and marine species under the PIPA Regulations and other relevant Kiribati laws.

**SAP 2.4 PIPA Offshore Fisheries**

*Target:* by the end of 2020, the PIPA Trust and the Government of Kiribati should have concluded an Agreement for payment of Conservation Fees to Kiribati in accordance with the conservation protocols of the Conservation Contract. Arrangement between the Trust and MFMRD on the monitoring of landing catch and fishing effort data outside the PIPA

boundaries within the Phoenix group EEZ including relevant data should have been in place. Research will be identified to further clarify tuna spawning hot spots and special management zones of the deep sea including seamounts within the PIPA.

*Baseline Situation:*

By January, 1, 2015, the entire PIPA area will be fully closed from fishing of any form/type, except in the Kanton artisanal fishing zone. Kiribati will be compensated for the loss of fishing revenue in accordance with the conservation fee protocol of the Conservation Agreement. Agreement between the Trust and Kiribati will be concluded on the compensation formula to be adopted. This would include catch records by the DWFNs within the Phoenix Islands beyond PIPA closed boundaries kept by the Ministry of Fisheries and Marine Resources Development including other relevant data to be used in the compensation formula.

In endowment discussions with GoK, catch and revenue estimations have had to rely on a relatively short time-series of data. Consequently, analysis of fishery license revenues hinges on a number of assumptions that cannot be verified or disproved without additional, more precise data. For instance, an important assumption in calculating potential reductions in DWFN revenues associated with the establishment of a tuna “no-take” zone within the PIPA relates to the spatial distribution of the annual DWFN catch and the harvest implications of spatially constraining the DWFN fleet in PIPA waters. Uwate et al. (2008) assumed that catch is evenly distributed throughout the Phoenix Islands EEZ. However, it is not clear to what degree foregoing harvests in all or part of PIPA will affect total DWFN landings in the Phoenix Islands EEZ. In addition, it is not clear whether a reduction in catch from the PIPA area results in an equivalent reduction in total catch (from open areas in the Phoenix Islands EEZ as well as DWFN operations in the rest of the Kiribati EEZ), because some or all of the catch and fishing effort that historically took place in potentially closed areas of the PIPA would be displaced to different areas. Indeed, the net effect of some MPAs has been to increase catches in adjacent areas, in what has been termed the “spillover effect.” Skipjack tuna juveniles have been collected in the Phoenix Islands area, suggesting that skipjack tuna may spawn in that area. If the Phoenix Islands are a major tuna spawning area, then there may be positive spillover effects in adjacent waters of PIPA, actually enhancing catches in the EEZ areas that remain open to fishing. This dynamic could have significant implications for the impact of the PIPA zonation scheme on net DWFN revenues, and thus on the scope of the no-take zone that could be supported at any set level of the PIPA Conservation Trust. The newly established PIPA Tuna Working Group comprising of representatives from MELAD, PIO, PT, MLPD, FFA & SPC will further look into this.

Reports on PIPA as an important spawning area will be verified through research work in the PIPA area. See SAP 2.6 on Seamounts.

*2015-2020 Actions:*

- Agreement on compensation by the PIPA Trust to the Government of Kiribati concluded;
- Monitoring of catch landings in the Phoenix Islands EEZ outside PIPA’s entire no-take-zone boundaries in accordance with agreement developed between the Ministry of Fisheries and Marine Resources Development; Tuna Working Committee to agree on parameters for record keeping

- Prohibition of the capture, harvesting or disturbance of all marine mammals, birds, turtles and fish species within PIPA inclusive of commercial fishing activities undertaken in Kiribati EEZ by the DWFNs pursuant to provision 6.2 of the Conservation Agreement. The Kanton community is exempted including incidental catch and for research purposes.  
Research to better understand the tuna spawning grounds in PIPA and the role of seamounts in tuna productivity.

### **SAP 2.5 PIPA Cultural and Historical Heritage**

*Target:* by the end of 2020 a conservation and information programme for PIPA's cultural and historical heritage programme will be designed and implemented under the direction of the Kiribati Museum and Cultural Division of MISA in partnership with the MELAD PIPA Office.

#### *Baseline Situation:*

The Phoenix Islands have a rich and diverse cultural and historical record with the common element of human occupation reaching its limits. PIPA cultural and historical values identified include:

- Archaeological artefacts, including walled structures, are evidence of early colonization by both Micronesians and Polynesians, providing an important cultural link and an example of island voyaging over time and the limits to which human settlement can extend – even into modern times. The Phoenix Islands could be considered an overlap area of these two important Pacific Islands peoples.
- The island Nikumaroro was named by Gilbertese settlers in 1937 in honour of the island of Nikumaroro, in the south of the Gilbert Group, from which the famous Gilbertese ancestress Nei Manganibuka came, bringing with her the traditional lore of deep-sea navigation and the first *buka* tree.
- Nikumaroro is possibly the site of the crash landing of Amelia Earhart on her failed trans-Pacific flight in 1938. Remains of a well-documented World War II aircraft crash exist on the island of Manra.
- Several islands in the group hold archaeological remains of settlements, guano mining and whaling/transiting ships from the 19th and early 20<sup>th</sup> centuries.
- Archaeological remains of the 20th century world beyond the Phoenix Islands and Kiribati borders include British and United States military bases from the Second World War, the airfield markers and base for the Trans-Pacific Pan-Am Clipper seaplane flights of the mid 1940-50s, and the United States missile testing base SAMTEC.

The only active regular historical investigation in the PIPA is the ongoing investigation of the Earhart crash by the US-based NGO, The International Group for Historic Aircraft Recovery (TIGHAR). TIGHAR operates under a PIPA Research Permit and has provided all reports to the PIPA Office.

#### *2015-2020 Actions:*

- Development and implementation of a Cultural and Historical Heritage Conservation Programme for PIPA under the auspices of the Kiribati Museum and Cultural Centre.
- Development of an information programme on the cultural and historical heritage of the Phoenix Islands, including information useful for tourism development.

- Ongoing TIGAR investigation into the Earhart disappearance under a PIPA permit and with TIGAR resources, noting that if clear evidence was found this would be of international importance.

## SAP 2.6 PIPA Seamount & Deep Seas

*Target:* by the end of 2020, increased understanding and conservation of PIPA seamount and deep sea habitat will be fostered through targeted and collaborative research

### *Baseline Situation:*

A globally unique aspect of the PIPA is the ocean-scape scale of the management area. PIPA has a huge bathymetric range with waters reaching to maximum of over 6000 meters depth but the main seafloor averages around 4,500 metres below the ocean surface. Additional to the ancient volcanoes that reach or approach the surface, bathymetry reveals a series of topographic features which are interpreted to also be volcanoes and which technically qualify as ‘seamounts’ – ‘submerged mountains with a height of more than 1,000 metres above the sea floor but whose peak lies below the photic zone’. To date, some 14 seamounts have been identified within PIPA, thirteen of which have been formally registered but only nine of those have yet been named: Tai, Polo, Siapo, Gardner, Tanoa, Fautasi, Tau Tau, Carondelet and Winslow Reef (see Annex 3 for Seamount Summary Descriptions). PIPA contains an isolated and unstudied seamount chain (Tokelau), which hosts the majority of seamounts within PIPA.

Current empirical deep-sea map data within PIPA are limited to multi-beam data primarily from a single cruise using the Scripps R/V *Melville* in 1999, which was a volcanic rock dredging cruise that produced the best bathymetric maps to-date of the region. From these maps, it is clear that PIPA presents a unique opportunity to investigate some long held but poorly supported paradigms about seamount ecology. Since 1959 when Hubbs first posed several key hypotheses about seamount ecology, the idea that seamounts are unique and special habitats - biological hotspots of diversity and biomass and abundance – has been the predominant paradigm. Yet, these and other assumptions are still poorly studied and unsupported.

Seamounts are thought to have a high level of endemism and often contain high numbers of species that are new to science. PIPA is a prime candidate for investigating the scale of seamount endemism, as seamount chains may have unique communities relative to other ridge systems. The Tokelau seamount chain also presents an opportunity to investigate the influence of latitude on seamount fauna. Due to equatorial upwelling and the equatorial countercurrent, there is high primary productivity at the equator in this area of the Pacific, which decreases with latitude. Surface water primary production has been linked to biomass and abundance of deeper water benthic animals. PIPA has seamounts, islands, and atolls that are distributed across this entire latitudinal range, and there are several seamounts at the same latitude. The geography of PIPA therefore creates the rare opportunity to investigate how benthic seamount communities are structured by latitudinal patterns, with replication, in the deep sea environment.

Seamount ecosystems are of very special interest for conservation because they are thought to be vulnerable to anthropogenic impact, which can lead to local extinctions. Much of the potential damage would result as a consequence of concentrated commercial fishing. It is estimated that as much as 25% of the world’s seamount ecosystems have already been degraded by deep sea fishing. Kiribati has recognised threats to seamounts and deep sea habitat in its signature of the *Declaration on Deep-Sea Bottom Trawling to Protect Biodiversity in the High Seas (Nadi Communiqué, Pacific Islands Forum, October 2006)*. This agreement commits the members of the Pacific Islands Forum to urgently take actions

consistent with international law to prevent destructive fishing practices on seamounts in the Western Tropical Pacific Islands Area. Protection of seamounts and deep sea habitat within PIPA is a complementary domestic measure to conserve these habitats within Kiribati's EEZ.

PIPA is fortunate in being so remote and its seamounts are so deep that the PIPA seamounts have escaped deep sea trawling to date. Consequently, their biota is believed to be intact and so, with continued protection, remain a valuable conservation asset. Although exploited through much of their range, virgin stocks of deep-sea animals, particularly eteline snappers and alfonsinos, may exist in remote areas such as the western seamounts in the PIPA and provide the opportunity to observe deep-water populations and ecosystems in a natural state. Because some Pacific Island nations have plans to develop their fisheries for deep-water resources, PIPA has the potential to be a rare and critical refuge.

PIPA is one of the very few large marine protected areas in the world that contains numerous seamounts. The 2000 deep-sea surveys by NEAQ recorded the first distribution records of sixgill (*Hexanchus griseus*) and Pacific sleeper (*Somniosus pacificus*) sharks for this part of the Pacific from 900 meters depth near Kanton. With 25% of the world's seamounts already degraded, the relatively pristine seamounts of PIPA provide critically important protection for these fragile ecosystems and associated species, representing a conservation resource of global significance.

PIPA's seamounts and deep sea habitats are seen as an important yet little understood component of PIPA. Targeted action during this plan seeks to address their effective protection and increase research effort and understanding as resources allow.

#### 2015-2020 Actions:

- Adjustments to the PIPA zoning plan of the open ocean/buffer zone to specify protection levels for seamounts beyond commercial fishing and deep sea mining.
- Investigation into naming rights of seamounts with the view to renaming with I-Kiribati names those named already and 'auctioning' naming rights as part of the PIPA awareness and fund raising programme.
- Develop and support a seamount and deep sea research programme within PIPA with the following aims:
  - To describe the biodiversity and habitats of the deeper areas of the PIPA and set a baseline for change;
  - Collect and describe new and/or endemic species found among PIPA seamounts.
  - Characterizing deep-sea connectivity upon and between Tokelau seamounts, and with other atoll and seamount systems in the region to shed light on potential dispersal patterns, and thus vulnerability of each seamount to high-mortality disturbance events (e.g. deep-sea mining, fishing exploitation, habitat destruction).
  - Collect deep sea coral samples that will be used to reconstruct past environmental conditions in PIPA and determine how and if these environments have experienced recent instability, perhaps due to climatological changes. The unusually great longevity (colony ages up to several thousand years) of some deep sea corals provide a unique opportunity to reconstruct surface processes (e.g., source of nitrogen, POC export) and in situ conditions (temperature, nutrient content such as Si, PO<sub>4</sub>).

- Continue the mapping of seamounts. Multi-beam bathymetry can allow ecological modelers to project species distributions across unsampled locations. The data is invaluable for identifying the spatial extent of important benthic habitats, potential biological hotspots and vulnerable species locations/distributions (i.e., deep water corals).
- Exploration of potential links between deep and shallow habitats of the PIPA, including benthic communities, water chemistry and mixing, and food web linkages;
- To use this biological data from the deep areas of the PIPA to inform the PIPA Management Planning process

### **SAP 2.7 PIPA Climate Change**

*Target:* By 2020, the best practice measures for climate change adaptation in tropical marine protected areas are implemented, and are supported by a Climate Change Research Programme that promotes using PIPA as a globally important sentinel site in understanding the impacts of climate change on tropical marine and island atoll systems, in the virtual absence of other anthropogenic factors.

#### *Baseline Situation*

Climate change is considered the most significant environmental risk to Kiribati as a nation, and this includes significant potential risk to the development and integrity of PIPA. With some of the lowest-lying islands in the Pacific, the whole of Kiribati is particularly vulnerable to periodic storm surges and droughts, particularly during La Niña years. By 2050, Kiribati could face economic damages from climate change of US\$ 8-16 million a year, equivalent to 17-34% of its 1998 GDP.

While climate change poses the most significant threat to the vast ocean wilderness area under explicit management by a national authority, PIPA provides an exceptional opportunity to serve as a natural laboratory for climate change. This natural laboratory is significant at two levels:

- (i) for Kiribati, to understand how degradation of ecosystem goods and services on populated islands undermines the resilience both of natural systems (the islands and marine systems) and society to climate change threats (freshwater, salinization, fishing, agriculture, public health, etc.); and
- (ii) for the world, as one of the few reference sites with significance globally for the issues listed above, as well as to larger scale climate issues such as ocean acidification, circulation patterns and the ENSO cycles that originate in this part of the Pacific.

Assessment and development of PIPA as a ‘natural climate change resource laboratory’ was made based on PIPA’s attributes as being a large, remote, all marine habitat inclusive marine protected area that has limited other anthropogenic impacts and as such clearly articulates national, regional and global potential benefits. In accordance with actions identified in the PIPA Management Plan 2010-2014, a scoping study was commissioned to better understand the current and future vulnerability of PIPA to climate change, to ensure that PIPA management is consistent with best practice for climate change resilience and adaptation for protected areas. Specifically the study (i) outlined the climate context of PIPA, (ii) identified its key vulnerabilities and strengths, (iii) outlined PIPA’s relevance to broader (geographic

and human) climate change issues in Kiribati, and globally, and (iv) identified opportunities for action and principal risks.

In addition, a 21-day expedition to PIPA in 2012, led by the New England Aquarium and the Kiribati Government, in collaboration with Woods Hole Oceanographic Institution, Red Sea Research Center - KAUST, and with participation by Scripps Institution of Oceanography, and Penn State University, gathered data to achieve goals central to the 10-year PIPA research vision.. In relation to climate change impacts, the expedition focused on the following:

- (i) a continuation of the long-term monitoring program (since 2000) to understand the resistance and reef recovery of coral reefs in PIPA to climate-induced stressors such as coral bleaching;
- (ii) collecting coral cores from long-lived species such as *Porites*, to look at coral growth and sea surface temperatures over the last 10-20 years as well as the last several centuries to analyse calcification rates to better understand past bleaching events and recovery dynamics; and
- (iii) collecting seawater samples from the lagoons at Kanton and Orona, and reefs adjacent to open water to understand seawater carbonate chemistry in the Phoenix Islands.

PIPA's long-term monitoring has documented near-pristine intact coral reefs before and after a major bleaching event in 2002-2003. The bleaching event was the result of persistent increased sea surface temperatures that reached 21 Degree Heating Weeks and persisted for four years. Inside the lagoon of Kanton the luxuriant community of *Acropora* spp. corals suffered near 100% mortality and there was an estimated 60% mortality of corals throughout the island group, as measured in 2005. Mortality varied among sites and islands in accordance with the presence of a lagoon, island size and windward versus leeward exposure. Fish populations were not noticeably affected. However, shark populations, especially at Kanton, Orona, Enderbury and Manra were severely impacted by illegal shark harvesting for fins in 2001, and in Kanton in 2012, as well as harvesting by locals in Orona from 2001-2000.

PIPA is an important global example of mortality and the potential for recovery from severe bleaching events, in the absence of significant local human impacts. By 2009 the Phoenix coral reefs have shown spectacular and rapid signs of recovery, regaining 50% of the area lost, and nearly 100% recovery in the best sites. With good water quality and intact fish herbivore populations, the initial colonization by algae following the coral mortality followed a succession from turf algae to coralline algae, and a progressive recovery of corals which are promoted by coralline algal cover. Also, the deep atoll slopes allowed deeper water corals to survive the bleaching event, species of fish remained robust, and there were signs of regeneration on even the most badly hit reefs shortly after the bleaching occurred. These signs of recovery were still evident in 2012, following a subsequent (but less severe) bleaching event in 2010. Climate change studies in 2012 suggest that Kanton lagoon may maintain its alkaline state as ocean acidification increases. That is taken to be a positive sign and suggests both the resilience of the Phoenix Islands reefs to ocean acidification and the value of these remote island reefs as global benchmarks.

#### Vulnerability of PIPA to Climate Change

The effects of global climate change and global warming are expected to continue, even in the remote areas such as PIPA. Because PIPA is located at the origin of Central Pacific warm surface waters that drive the El Niño phenomenon, there have been various meteorological studies indicating that the Phoenix Islands region is ideally located for monitoring changes in weather patterns, especially ENSO activities. The impacts of these changes could be potentially amplified in the frail and unique ecosystems of the Phoenix Islands, making them a potential early-warning indicator location as well as a critical place to test predictions of climate models. Based on knowledge and studies completed to date, the vulnerability of PIPA to climate change can be summarized as follows:

- (i) *Air temperature, sea surface temperatures and sea level rise:* The mean air temperature for the PIPA region is projected to increase by 1.6°C above 1980-1999 levels by the 2050s and 2.6°C above 1980-1999 levels by the 2090s under business-as-usual scenario. Under this scenario, the probability of thermal stress in a given year increases to 45% of the time in the 2030s, 70% of the time in the 2050s, and 100% of the time by the end of the century. All high tides in the Phoenix Islands are expected to exceed the highest king tides experienced today. The ability of PIPA to adapt will be determined by acclimation to these climate-induced changes, and how quickly thresholds will be exceeded.
- (ii) *Ocean acidification:* Increase in atmospheric CO<sub>2</sub> has direct impacts on marine chemistry and marine ecosystems. Models suggest the mean pH and aragonite saturation state for PIPA were 8.16 and 4.21, respectively in pre-industrial times, and decreased to a pH of 8.05 and  $\Omega_{\text{aragonite}}$  of 3.62 by the year 2000. Net coral reef growth will approach zero if the aragonite saturation passes below 3.3 as the rate of calcification will lower to the rate of erosion. The model results show that if atmospheric CO<sub>2</sub> concentration reaches 450 ppm, expected to occur by the 2030s under business-as-usual scenario, the  $\Omega_{\text{aragonite}}$  will decrease to 3.31 in PIPA. If atmospheric CO<sub>2</sub> concentration reaches 550 ppm, expected to occur by the 2030s under business-as-usual scenario, the  $\Omega_{\text{aragonite}}$  will decrease to 2.99 in the PIPA region. While PIPA's coral reefs are less likely to erode (or dissolve) like some high latitude reefs, the low aragonite saturation state would cause long-term degradation of the reef framework.
- (iii) *Pelagic Ecosystems and Tuna:* Deep and shallow open water systems contain the largest volume of habitable space in PIPA, including the photic zone and deep abyssal waters. Climate change impacts on pelagic systems may be caused by temperature (in the upper levels), ocean acidification (at all levels), and shifts in currents that change the locations of large bodies of water and the fronts between current systems. Temperature and ocean acidification impacts to species will be physiological, potentially changing recruitment, growth, reproduction and survival patterns. Changes in the location of pelagic fish stocks of economic significance will likely increase with climate change as the dynamics of sea surface temperature heating intensify. The implications for biodiversity and management of PIPA may be severely impacted.
- (iv) *Coral Reefs:* PIPA's coral reefs are showing a clear ability to recover faster than is reported from more impacted systems, with 50% recovery of coral cover at 6 years after a massive mortality following bleaching. The time to full recovery of coral cover may be estimated therefore at 12-15 years for general recovery, with a time scale of 6-8 years for the sites with fastest recovery, though full recovery of a stable climax

community reflecting full ecological complexity will likely take longer. Recruitment of new corals was good in 2009 and 2012 though not high, and this may reflect the isolation of the islands and low reproductive success due to low densities of adult corals following the bleaching, and their reliance on self-seeding (i.e. larvae from PIPA as opposed to outside of PIPA) for recruitment. Recovery appears to be predominantly from regrowth of colonies that suffered partial mortality, but survived. Recovery of the full complement of coral species and colony size classes takes longer, but at 8-15 years we can expect the benthic community to have regained its prior function. However, these optimistic recovery trajectories may be disrupted if there are more frequent thermal stresses as temperatures rise further.

- (v) *Deep sea, seamounts*: The deep sea comprises the largest areal cover of any habitat in PIPA (approx. 70%), but is also the least known. Sensitivity of deep communities to acidification is not very well understood. Fourteen seamounts rise to within 500-1500 m of the surface, and emerging evidence shows that these systems will be highly vulnerable to climate changes, including potentially acidification and changes in current patterns at depth.
- (vi) *Marine turtles and mammals* - Green turtles are abundant in the Phoenix Islands, with large numbers of nests observed on the beaches, particularly on Enderbury. Sea turtles are highly sensitive to nest temperatures, as increasing temperature alters the sex ratio in favour of males. Low numbers of marine mammals (mostly dolphins and a small numbers of beaked whales) have been sighted in PIPA. Marine mammals are not known to be highly sensitive to temperature changes in the tropics, but may be vulnerable as a result of changing tropic dynamics, and shifting water masses will affect planktonic and fish populations that they depend on.
- (vii) *Islands, shorelines and groundwater*: Periodic droughts result in reduced freshwater availability, poorer vegetation cover and implications for dependent species such as seabirds and insects. Past human settlements on islands in PIPA have failed as a result of climate variability, and climate change may further exacerbate conditions. Erosion of the carbonate framework of the islands will be accelerated by multiple climate change factors, including sea level rise, changes in storm patterns, changes in groundwater and acidification. Submersion of the populated islands is among the most dramatic climate change impacts that Kiribati will face. Sea level rise results in salt water intrusion to freshwater aquifers, and low-lying carbonate islands are particularly vulnerable to this. Given also that the Phoenix Islands are in a relatively dry zone in the Central Pacific, there will be less freshwater recharge to counter-balance saltwater intrusion. Only the largest of the islands have a freshwater lens sufficient to support tree vegetation.
- (viii) *Seabirds and other terrestrial species*: The seabird populations of PIPA are among its most significant values. They differentiate by island depending on vegetation type, thus any changes in vegetation may have significant impacts on their nesting ability. Further, changes in ocean currents and pelagic systems may result in tropic changes that may de-synchronize food accessibility and nesting seasons, causing disturbances to seabird populations. Further all terrestrial species will be affected not only through their direct vulnerability to changing climate, but to the loss of island area over time.

- (ix) *Anthropogenic stresses that reduce resilience*: Shipwrecks of various ages are present in PIPA, with known ones going back to the 1930s and Second World War, and older ones evident from chains, anchors and isolated ship parts. Iron enrichment in these low-nutrient open ocean waters appears to result in poisoning of corals and most other reef invertebrates, and promoting a black algal turf community, and at lower levels promoting a dark, pink-purple coralline algae. Clearest evidence of iron-related reef impacts are at Nikumaroro (Norwich City shipwreck), Kanton (President Taylor shipwreck) and Orona. The most recent shipwreck, of a freighter on the windward side of McKean in 2001 showed a small area of impact at 5 m in the shallows, but the high wave energy and strong currents appear to limit the impact of this wreck from iron enrichment.

Given these vulnerabilities, PIPA will be managed in accordance with best practice advice and information for adaptation to climate change in marine and island protected areas, provided by the PIPA Scientific Advisory Committee (SAC). PIPA, as a very remote, intact, protected oceanic environment, is of scientific importance as a global benchmark for identifying and monitoring the processes of sea level change, growth rates and age of reefs and reef builders, both geologically and historically, and in evaluating effects from climate change and coral bleaching events without the confounding factors of pollution or resource extraction. The reef system is so remote from industrial activities that it can serve as a critical benchmark for coral ecosystem understanding and potential guide the restoration of other degraded hard coral ecosystems. As such, the PIPA has exceptional value as a natural laboratory for the study and understanding of the significant ongoing ecological and biological processes in the evolution and development of marine ecosystems of the Pacific, the world's largest ocean, indeed all oceans.

#### *2015-2020 Actions:*

As further research is undertaken on other systems, specific recommendations for limiting climate impacts may be made, and the PIPA Management Plan 2015-2020 should incorporate mechanisms for regular review of any new findings. At the time of writing, assessment of the climate change vulnerability and impacts to the coral reefs of PIPA had been undertaken, and incorporated into the PIPA Management Plan 2015-20 Specific recommendations for management are below.

#### 1. Protection of Kanton Atoll

Any development proposed for Kanton should proceed with extreme caution, with the appropriate environmental safeguards in place to prevent changes to water quality, the degradation of coral reef and other ecosystems, or the disruption of recovery processes that continue post 2002-2003 bleaching. The tabular *Acropora* community of Kanton lagoon was the most vulnerable coral community to climate change. A recommendation from this finding would be for the Kanton Sustainable Resource Plan to consider designating as much of this lagoonal reef habitat as a strict protection zone with no fishing allowed, even for subsistence. This would remove perhaps 5 km<sup>2</sup> of lagoon area from fishing access, a reduction of only 10%.

#### 2. Prevention and Removal of Shipwrecks

Shipwrecks release enough iron into surrounding waters that the recovery of corals from mass mortality is reduced. Two key actions should be considered:

- a. Punitive fines to finance removal of any new shipwrecks should be developed, following practice from other coral reefs areas (e.g. Florida Keys, Egypt, Australia), and removal plans be designed to come into action when needed; and
  - b. If possible, the large old shipwrecks and remnant iron be removed. The sites most strongly affected include the western corner of Orona (no visible shipwreck at the surface), the Norwich City on Nikumaroro, and the President Taylor on Kanton has an impact on the entrance to the lagoon, but is likely too large to move. Options to remove shipwrecks on windward facing reefs should also be considered, if logistically possible.
3. Prevention of Anthropogenic Stressors  
To date the most successful basic management strategy is to remove all other anthropogenic stressors to the PIPA environment (e.g. reduce fishing effort, avoid pollution, eradicate invasive species, remove shipwrecks and prevent habitat degradation), on the basis that PIPA would then have the best chance to cope with impacts of climate change. Specific guidelines should be developed to control and manage tourism to PIPA to minimise impacts to reefs, seabird colonies and prevent the introduction of invasive species to any of the islands.
4. Promote and Support PIPA Climate Change Research  
Continue to support climate change research in PIPA, in accordance with the Phoenix Islands Protected area Research Vision: 2011-2020. PIPA will continue to strengthen existing research partnerships (e.g. New England Aquarium, Woods Hole Research Institution). PIPA will also continue to further engage in the partnerships such as with the U.S. Papahānaumokuākea Marine National Monument, Pacific Remote Island Marine National Monument, as well as the Big Oceans Initiative, to ensure synergies and explore opportunities to do collaborative monitoring and research relating to climate change.

*No summary needed here?*

### **SAP 3. State of PIPA Report 2019**

Under the auspices of the MELAD Minister and the Principal Environment Officer the PIPA Office will produce, not later than 1 July 2019, a “State of the PIPA” report as required by the PIPA Regulations (2008). This report will assess PIPA status and trends including:

- Bird population trends
- Vegetation/ecosystem responses
- Live coral cover trends
- Selected reef fish population trends
- Reef shark population trends
- Turtle population trends
- Pelagic conditions within the PIPA, including fisheries landings trends
- Annual visitor number trends and
- Such other matters as the PIPA MC shall chose to report

The design of the PIPA Monitoring and Evaluation Programme will be completed by the end of December 2014 to ensure consistent and standard methodology to monitor the parameters listed above. At that time a PIPA Baseline Report for these parameters based on existing information will be compiled to be used as a reference base for the evaluation of trends for the 2019 report.

This report will be used as a basis for evaluation of the effectiveness of PIPA Management to date, issues arising and will provide input to a new PIPA Management Plan to be effective from 1 January 2015.

**SUMMARY: For this Plan (PIPA Management Plan (2015-2020) the PIPA Office will lead the development and completion for the Principal Environment Officer and MELAD Minister approval of a "State of the PIPA Report" to be completed no later than 1 July 2020.**

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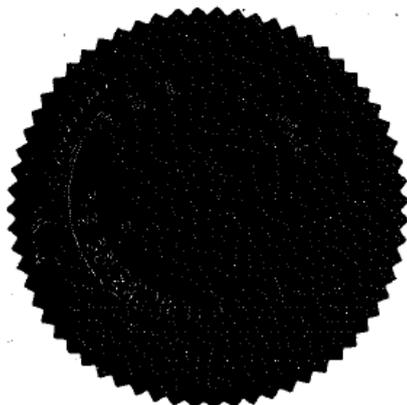
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Appendix 1: Environment (Amendment) Act, 2007



REPUBLIC OF KIRIBATI  
(No 1 of 2007)

I assent,  
*Audis Tong*  
Beretitenti  
04/09 2007

AN ACT TO AMEND THE *ENVIRONMENT ACT* 1999

Commencement:  
2007

MADE by the Maneaba ni Maungatabu and assented to by the Beretitenti

1. Short title

This Act may be cited as the *Environment (Amendment) Act* 2007.

2. Meaning of 'principal Act'

In this Act 'principal Act' means the *Environment Act* 1999.

3. Amendment of section 2

Section 2 of the principal Act is amended—

- (a) by inserting after the definition of 'approval' the following definition—  
"conduct' includes an act or omission;"
- (b) by inserting after the definition of 'conservation' the following definitions—  
"construction work' includes—
  - (a) excavation; and
  - (b) erection, alteration or repair of a building or structure;  
'conveyance' means a vessel, vehicle or aircraft;"
- (c) by repealing the definition of 'discharge' and substituting the following definition—  
"discharge' includes dumping, spilling, leaking, pumping, throwing, placing, dropping, abandonment, depositing, discarding, rejecting, emitting and other similar activities;"

- (d) by inserting after the definition of 'Division' the following definition—  
“‘energy’ includes vibrations, noise, heat and electromagnetic radiation;”;
- (e) by inserting after the definition of 'environment' the following definitions—  
“‘environment inspector’ means a person appointed under section 5(4), and includes the Principal Environment Officer;  
‘environment licence’ means a licence granted under section 32 or section 37;”;
- (f) by repealing the definition of 'environmental impact assessment (EIA)';
- (g) in the definition of 'Environment impact statement (EIS)', by repealing the word "Environment" (where it first appears) and substituting the word "environmental";
- (h) by repealing the definition of 'Environmental inspector' and substituting the following definitions—  
“‘evidentiary material’ means an item that is suspected on reasonable grounds of—
  - (a) being involved in a contravention of this Act;
  - (b) affording evidence as to a contravention of this Act; or
  - (c) being used, or intended to be used, for the purpose of contravening this Act;  
‘harm’ means an adverse effect other than an insignificant adverse effect, and, in the case of an organism, includes gathering, plucking, cutting, pulling up, moving, destroying, taking, digging up, removing, injuring, hunting, shooting, poisoning, netting, snaring, spearing, pursuing, capturing, trapping or killing the organism;  
‘heritage’ includes a place, feature, structure or object that has aesthetic, archaeological, historic, cultural, natural, scientific or social significance or other special value for the present community and for future generations;”;
- (i) by inserting after the definition of 'licence' the following definitions—  
“‘litter’ includes waste, refuse, debris and rubbish, but does not include vegetation;  
‘management plan’ means a management plan for a protected area or an area on the World Heritage list;”;
- (j) by inserting after the definition of 'offensive noise' the following definitions—  
“‘open place’ means any place not inside a building or conveyance;

- 'organism' includes—
- (a) an organism that is alive or dead;
  - (b) part of an organism;
  - (c) egg, embryo, ova, semen, seed and any organic animal tissue from which the organism can be produced;
  - (d) any matter or secretion that the organism produces; and
  - (e) any product that is derived from or includes the organism;”;
- (k) by inserting after the definition of 'pollution' the following definition—
- “‘precautionary principle’ means the principle whereby a lack of scientific certainty should not be used as a reason for not acting to anticipate, prevent or minimise environmental harm;”;
- (l) in the definition of 'premises', by inserting after “includes” the words “a building or structure, and any land or a place (whether enclosed or built on or not), and a”;
- (m) by inserting after the definition of 'prescribed development' the following definitions—
- “‘Principal Environment Officer’ means the person appointed under section 5(2);
- ‘private premises’ means any premises which is not a public place;
- ‘protected area’ means an area, subject to any conditions (if any), prescribed under section 43;
- ‘protected species’ means a species, subject to any condition (if any), prescribed under section 41;”;
- (n) by inserting after the definition of 'public authority' the following definitions—
- “‘species’ includes any defined sub-species and taxon below a sub-species and any recognisable variant of a sub-species or taxon;
- ‘substance’ means any solid, liquid or gas, including odour;”;
- (o) in the definition of 'sustainable development', by repealing paragraph (f) and substituting the following paragraphs—
- “(f) preserving protected species and areas of environmental, cultural and historic significance; and
- (g) avoiding, minimising, mitigating and remedying adverse effects on natural, social and cultural systems;”;

- (p) by inserting after the definition of 'waste' the following definitions—
- “‘World Heritage Convention’ means the *Convention for the Protection of the World Cultural and Natural Heritage* done at Paris on 16 November 1972;
- ‘World Heritage list’ means the list established by Article 11(2) of the World Heritage Convention.”.

#### 4. Amendment of section 3

Section 3 of the principal Act is amended—

- (a) by repealing sub-paragraph (iv) of paragraph (c); and
- (b) after paragraph (d), by inserting the following paragraphs—
- (e) to comply with and give effect to regional and international conventions and obligations relating to the environment;
- (f) to provide for the protection, conservation and use of the environment;
- (g) to promote sustainable development;
- (h) to control, manage and regulate hazardous substances;
- (i) to promote the conservation and sustainable use of biological diversity; and
- (j) to protect, conserve and promote heritage.”.

#### 5. New sections 4A and 4B

After section 4 of the principal Act, the following sections are inserted—

##### “4A. Extent of Act

- (1) This Act applies, in addition to the circumstances described in Part III of the *Penal Code*—
- (a) throughout Kiribati and Kiribati waters; and
- (b) throughout the exclusive economic zone of Kiribati.
- (2) This Act shall not apply to any island or part of an island which the Minister, acting in accordance of the advice of the Cabinet may from time to time by order in writing declare to be so exempt.
- (3) If expressly stated, a provision of this Act may apply in other places.

##### 4B. Requirements of decision making

In any decision made under this Act, the decision-maker must—

- (a) have due respect for the culture and traditions of the people of Kiribati;

- (b) endeavour to minimise, where appropriate, any adverse effects upon those persons who engage in a subsistence lifestyle;
- (c) consider, where appropriate, the retention and use of the traditional knowledge, innovations and practices of the people of Kiribati relevant to the conservation and sustainable use of the biological diversity of Kiribati;
- (d) be mindful of the technical capacity constraints prevailing in Kiribati;
- (e) not act inconsistently with the precautionary principle; and
- (f) not act to substantially increase the risk of extinction of any species in Kiribati.”.

#### 6. Amendment of section 5

Section 5 of the principal Act is amended by repealing subsection (2) and substituting the following subsections—

- “(2) Subject to section 99 of the *Constitution*, the Minister shall, by instrument in writing published in the *Gazette*, appoint a Principal Environment Officer.
- (3) The Minister may give the Principal Environment Officer directions as to the exercise of any powers or functions or the performance of any duties under this Act.
- (4) Subject to section 99 of the *Constitution*, and subject to subsection (5), the Minister may, by instrument in writing, appoint a person (including a class of persons) as an environment inspector.
- (5) If a person or class of persons to be appointed as an environment inspector is employed otherwise than in the Ministry of the Minister, the Minister must consult with the employer of the person or class of persons.”.

#### 7. Amendment of section 6

Section 6 of the principal Act is amended as follows—

- (a) by repealing subsection (1)(a); and
- (b) by renumbering the existing sub subsections (b) to (k) of subsection (1) as (a) to (j).

#### 8. Amendment of section 7

Section 7 of the principal Act is amended by repealing the whole section.

#### 9. Amendment of section 9

Section 9 of the principal Act is amended by repealing the whole section.

## 10. Repeal and replacement of Parts III, IV and V

Parts III, IV and V of the principal Act are repealed and the following Parts are substituted—

### “PART III—OBLIGATIONS

#### Division 1—Pollution

##### 12. Littering

- (1) Litter must be placed—
  - (a) in a contained manner;
  - (b) separate from vegetation material; and
  - (c) in a place where it will be collected for disposal.
- (2) Any person who discharges litter in any open place or public place contrary to subsection (1), other than in accordance with an environment licence, commits an offence.  
*Maximum penalty: fine of \$500, imprisonment for one month*
- (3) Subsections (1) and (2) only apply to—
  - (a) South Tarawa;
  - (b) Kiribati waters;
  - (c) the exclusive economic zone of Kiribati; and
  - (d) any other area that may be prescribed by regulation.

##### 13. Pig premises to be kept clean

The occupier of premises who allows a place where a pig is kept to be in an unclean condition commits an offence.

*Maximum penalty: fine of \$500, imprisonment for one month*

##### 14. Excessive emissions from vehicles

- (1) A person who drives, or allows a person to drive, a vehicle if the vehicle emits excessive emissions commits an offence.  
*Maximum penalty: fine of \$500, imprisonment for one month*
- (2) For the purpose of subsection (1)—

‘excessive emissions’ means—

  - (a) for a diesel-fuelled vehicle, when operated normally—
    - (i) visible smoke continuously for more than five seconds;  
or
    - (ii) a cloud of visible smoke which is larger than one metre in diameter at any point; and

- (b) for a petrol-fuelled vehicle, when operated normally, any visible smoke.
  - (3) The definition of 'excessive emissions' may be amended by regulation.
- 15. Pollution of waters**
- (1) A person who causes or allows the discharge of any substance or energy into water that—
    - (a) results in a change in the physical, chemical or biological condition of the water;
    - (b) causes a visible change to the water or the surface of the water;
    - (c) makes, or is likely to make, the water unclean, noxious or poisonous;
    - (d) makes, or is likely to make, the water detrimental to the health or safety of persons, property, animals or plants; or
    - (e) interferes with, or is likely to interfere with, the exercise or enjoyment of any person's right in relation to the water,other than in accordance with an environment licence commits an offence.

*Maximum penalty: fine of \$100,000, imprisonment for five years*

- (2) In this section—
  - 'discharge' includes, in addition to the definition in section 2, placing any substance in a position where it falls, descends, is washed, is blown or percolates into any water, or is likely to do so;
  - 'water' includes the whole or any part of any lagoon, swamp, wetland, lake, unconfined surface water, natural or artificial watercourse, dam, tidal waters (including the sea), underground waters, or water in artificial works, water mains, water pipes or waterchannels.

**16. Dumping in sea or lagoon**

- (1) A person who causes or allows the dumping of waste or other matter in the sea or lagoon other than in accordance with an environment licence commits an offence.

*Maximum penalty: fine of \$10,000, imprisonment for two years*

- (2) Subsection (1) does not apply to:
  - (a) the disposal of waste or other matter incidental to or derived from the normal operations of vessels, aircraft, platforms or other man-made structures; or
  - (b) the placement or abandonment of waste or other matter other than for disposal.

(3) In this section—

‘dumping’ includes any abandonment or toppling of platforms or other man-made structures;

‘waste or other matter’ means materials and substances of any kind, form or description, and includes vessels, aircraft, platforms or other man-made structures, cables, pipelines and marine research devices.

**17. Pollution from private premises**

A person who causes or allows the discharge of any substance or energy from private premises that unreasonably interferes, or is likely to unreasonably interfere with, the health or comfort of any person outside that premises commits an offence.

*Maximum penalty: fine of \$10,000, imprisonment for two years*

**18. Pollution in a public place or public conveyance**

A person who causes or allows the discharge of any substance or energy in any public place, or conveyance used by the public, that unreasonably interferes with, or is likely to unreasonably interfere with, the health or comfort of any person commits an offence.

*Maximum penalty: fine of \$10,000, imprisonment for two years*

**19. Pollution that harms the environment**

A person who causes or allows the discharge of a substance or energy which harms the environment other than in accordance with an environment licence commits an offence.

*Maximum penalty: fine of \$100,000, imprisonment for five years*

**20. Duty to clean-up environment**

(1) A person who causes or allows the discharge of any waste or other substance in contravention of this Act must take any appropriate actions to remove the waste or other substance and remedy, mitigate and contain any harm to the environment.

(2) A person who fails to comply with subsection (1) commits an offence.

*Maximum penalty: fine of \$100,000, imprisonment for five years*

**Division 2—Environmentally-Significant Activities**

**21. Environmentally-significant activities**

(1) Environmentally-significant activities are activities listed in the Schedule.

(2) The Minister, acting in accordance with the advice of Cabinet, may, by notice published in the *Gazette*, amend the Schedule.

**22. Carrying out environmentally-significant activities**

- (1) An—
- (a) environmentally-significant activity; and
  - (b) any construction work designed to enable an environmentally-significant activity,
- must be carried out in accordance with an environment licence.
- (2) A person who—
- (a) carries out; or
  - (b) is responsible for, directs, causes or allows the carrying out of, an environmentally-significant activity, or construction work, contrary to subsection (1) commits an offence.

*Maximum penalty: fine of \$100,000, imprisonment for five years*

**Division 3—Conservation**

**23. Harming coral reefs, mangroves and sea grass beds**

- (1) A person who causes or allows harm (other than insignificant harm) to a—
- (a) coral reef;
  - (b) mangrove; or
  - (c) sea grass bed,
- other than in accordance with an environment licence commits an offence.

*Maximum penalty: fine of \$10,000, imprisonment for two years*

- (2) Subsection (1) does not apply to conduct that is a traditional practice in Kiribati.

**24. Harming a protected species or its nest or dwelling place**

- (1) A person who causes or allows harm to—
- (a) an organism that is a protected species; or
  - (b) the nest or dwelling place of a living organism that is a protected species,
- other than in accordance with an environment licence commits an offence.

*Maximum penalty: fine of \$10,000, imprisonment for two years*

- (2) In any proceedings for a contravention of paragraph (1)(a), it is a defence if the person against whom the proceedings have been brought establishes—
- (a) that the harm to the organism was incidental to the lawful taking of a marine species; and
  - (b) if the organism was taken or captured, that upon becoming aware of the taking or capturing, immediate steps were taken to return the organism to its natural environment.

**25. Trading, possessing, etc. protected species**

- (1) A person who buys, sells, offers for sale, possesses, has under control, imports or exports an organism that is a protected species other than in accordance with an environment licence commits an offence.

*Maximum penalty: fine of \$100,000, imprisonment for five years*

- (2) In any proceedings for a contravention of subsection (1), it is a defence if the person against whom the proceedings have been brought establishes that the organism was taken from the wild, or cultivated, without contravening this Act.
- (3) A person does not contravene subsection (1) if the organism is a plant naturally occurring on land that the person owns or occupies.

**26. Actions affecting protected areas**

A person who engages in conduct which results in—

- (a) harm an organism in a protected area;
- (b) harm to a natural feature in a protected area;
- (c) harm to heritage in a protected area;
- (d) the carrying out of construction work in a protected area;
- (e) any activity for commercial purposes in a protected area;
- (f) harm to any fence, sign, or building in a protected area; or
- (g) harm to the environment in a protected area,

other than in accordance with an environment licence or management plan for the area, commits an offence.

*Maximum penalty: fine of \$100,000, imprisonment for five years*

**27. Possessing certain items in a protected area**

A person who possesses any of the following items in a protected area—

- (a) an explosive;
- (b) a device or instrument used to hunt or capture an animal; or

(c) a device for detecting minerals or metal, other than in a stowed position which is not accessible for use, or in accordance with an environment licence, commits an offence.

*Maximum penalty: fine of \$10,000, imprisonment for two years*

#### **28. World Heritage of a World Heritage area**

A person who causes or allows harm to the cultural heritage or natural heritage (as defined by the World Heritage Convention) of an area included on the World Heritage list, other than in accordance with an environment licence, commits an offence.

*Maximum penalty: fine of \$100,000, imprisonment for five years*

### **Division 4—Miscellaneous**

#### **29. Contravention of conditions of an environment licence**

If—

- (a) a person is the holder of an environment licence; and
- (b) a condition of that licence is contravened,

the person commits an offence.

*Maximum penalty: fine of \$100,000, imprisonment for five years*

#### **30. Providing false or misleading information**

If—

- (a) a person provides information in response to a requirement, direction or request under this Act or in the process of obtaining a licence, authorisation or accreditation (however described) under this Act; and
- (b) the person knows or is reckless as to whether the information is false or misleading in a material particular,

the person commits an offence.

*Maximum penalty: fine of \$100,000, imprisonment for five years*

### **PART IV—ENVIRONMENT LICENCES**

#### **31. Application for an environment licence**

A person may apply to the Principal Environment Officer for an environment licence in relation to a proposed activity by—

- (a) using the form approved by the Principal Environment Officer from time to time, and attaching any information required by that form; and
- (b) paying such fee as may be prescribed by regulation.

**32. Consideration of application**

- (1) After receiving an application for an environment licence, the Principal Environment Officer may, in writing to the applicant—
  - (a) grant an environment licence, subject to any reasonable conditions;
  - (b) require the applicant to submit an environmental impact assessment report to the Principal Environment Officer; or
  - (c) refuse to grant an environment licence.
- (2) The Principal Environment Officer may only grant an environment licence under subsection (1) if—
  - (a) the possible environmental impacts of the proposed activity are well known, are not significant, will not harm area of natural, cultural or historic significance, and are not likely to be controversial; or
  - (b) the activity is an unforeseen activity requiring immediate action in the public interest, and the need for such action outweighs the need for an environmental assessment.
- (3) In making a decision under subsection (1), the Principal Environment Officer must—
  - (a) be guided by the principles of sustainable development;
  - (b) not act inconsistently with any international obligation or agreement relating to the environment entered into by Kiribati; and
  - (c) act in accordance with any other requirements that may be prescribed.

**33. Requirements of environmental impact assessment report**

- (1) An environmental impact assessment report must include—
  - (a) a description of the impacts of the proposed activity;
  - (b) the possible alternatives to the proposed activity, including the alternative of not undertaking the proposed activity;
  - (c) mitigation measures that can be applied to minimise or prevent harm to the environment; and
  - (d) any details that may be prescribed.
- (2) The Principal Environment Officer may, by notice in writing to an applicant, exempt the applicant from including information required by subsection (1) if the Principal Environment Officer considers the information is not necessary or appropriate for the purposes of evaluating the proposed activity.

- (3) In preparing an environmental impact assessment report, the applicant must attempt to consult with—
  - (a) any nearby or adjacent landowners; and
  - (b) any other person who would have an immediate interest in the activity.
- (4) The costs of preparing an environmental impact assessment report must be borne by the applicant for the environment licence.

**34. Requesting additional information and seeking advice and information**

- (1) At any point after an application for an environment licence has been made, and before determining the application, the Principal Environment Officer may, in writing—
  - (a) request additional information from the applicant; or
  - (b) seek advice or information from any person or committee, to gain a better understanding of the proposed activity.
- (2) If the Principal Environment Officer has made a request under subsection (1)(a), the Principal Environment Officer is not required to make any further decisions in relation the application for the environment licence until the information is provided.

**35. Suggesting amendments to proposed activities**

- (1) The Principal Environment Officer may, by notice in writing to an applicant, suggest amendments to a proposed activity.
- (2) The applicant, in response to a suggestion made under subsection (1), may by notice in writing to the Principal Environment Officer, modify the proposed activity.

**36. Publication of environmental impact assessment report**

- (1) If the Principal Environment Officer is satisfied that an environmental impact assessment report meets the requirements of this Act, the Principal Environment Officer must give notice in writing to the applicant setting out a procedure for publication adequate to bring the report to the attention of interested persons.
- (2) Without limiting the generality of subsection (1) the Principal Environment Officer may require—
  - (a) publication of notices in newspapers and radio;
  - (b) the holding of public hearings; and
  - (c) submission of copies to public authorities or specified persons that may be interested in the proposed activity.

- (3) The Principal Environment Officer may require that comments be submitted to the Principal Environment Officer by a particular date.
- (4) The Principal Environment Officer may exclude information from publication to—
  - (a) protect the environment; or
  - (b) protect commercially sensitive information.
- (5) The Principal Environment Officer must allow the applicant to inspect and copy any comments received by the Principal Environment Officer under this section.
- (6) The Principal Environment Officer may require that the costs of publication in relation to this section be borne by the applicant.
- (7) The Principal Environment Officer is not required to make any further decisions in relation to an application unless the applicant has published the environmental impact assessment report as required by subsection (1).

### **37. Consideration of environmental impact assessment report and comments**

- (1) At the conclusion of any period allowed for comment under section 36 the Principal Environment Officer may, in writing to the applicant—
  - (a) grant an environment licence for the proposed activity, subject to any reasonable conditions; or
  - (b) refuse to grant an environment licence.
- (2) In making a decision under subsection (1), the Principal Environment Officer must—
  - (a) be guided by the principles of sustainable development;
  - (b) not act inconsistently with any international obligation or agreement relating to the environment entered into by Kiribati; and
  - (c) act in accordance with any requirements that may be prescribed.

### **38. Conditions on environment licences**

An environment licence may be subject to reasonable conditions, including conditions—

- (a) specifying the duration of the licence;
- (b) specifying the location of any particular activities;
- (c) specifying the method of undertaking any activities;
- (d) modifying the proposed activity;

- (e) requiring the monitoring and reporting of any environmental impacts;
- (f) specifying maximum quantities of emissions of substances;
- (g) requiring the implementation of a plan to manage any environmental impacts;
- (h) requiring the lodgement of bonds;
- (i) specifying fees that must be paid;
- (j) requiring replanting of vegetation or measures to improve the environment;
- (k) specifying any procedures for cessation and rehabilitation; and
- (l) specifying individuals who may carry out activities under the licence.

#### **39. Transfer of environment licences**

An environment licence may only be transferred after written approval from the Principal Environment Officer.

### **PART V—CONSERVATION**

#### **Division 1—Protected Species**

#### **40. Purpose of Division**

This Division establishes a list of species which are at risk of extinction in Kiribati or globally, or are culturally significant, and are in need of protection.

#### **41. Prescribing protected species**

- (1) Protected species may be prescribed by regulation.
- (2) A protected species may be categorised according to international or national standards.
- (3) A protected species may be subject to any conditions, including that—
  - (a) it is a protected species only in certain areas, or during certain times; or
  - (b) the taking of a certain quota of the species is allowed.
- (4) Before prescribing a species under subsection (1), the Minister must—
  - (a) undertake any consultations that may be required by Cabinet; and
  - (b) follow any procedures that may be prescribed by regulation.

## Division 2—Protected Areas

### 42. Purpose of Division

This Division establishes a list of areas to be protected for conservation purposes.

### 43. Prescribing protected areas

- (1) Protected areas may be prescribed by regulation.
- (2) A protected area may be categorised according to international or national standards.
- (3) A protected area may be subject to any conditions, including that—
  - (a) it is a protected area only at certain times; or
  - (b) that particular provisions of Part III do not apply to the protected area.
- (4) Before prescribing an area under subsection (1) the Minister must—
  - (a) undertake any consultations that may be required by Cabinet;
  - (b) follow any procedures that may be prescribed by regulation; and
  - (c) make reasonable enquiries to identify persons having a proprietary interest or right in the area, and if such persons are identified, attempt to make an agreement in writing with those persons relating to the protected area.
- (5) Any agreement made under subsection (4)(c)—
  - (a) if the proprietary interest or right is over land, attaches to the interest in the land and binds any person to whom the interest is transferred;
  - (b) may provide for arrangements for the management of the protected area;
  - (c) may provide for compensation; and
  - (d) may provide for activities that are allowed without contravening this Act.
- (6) If an area (or part of an area) is proposed to be revoked from being a protected area, or the protection of the area is reduced, the revocation must be in accordance with a specific resolution of the Maneaba ni Maungatabu.

### 44. Proprietary interest or rights over a protected area

- (1) If a proprietary interest or right over a protected area—
  - (a) is held by a person other than the Republic or a person with whom an agreement has been made under section 43(4)(c), and

(b) is held prior to the area becoming a protected area, sections 26 and 27, and any management plan for the protected area, do not apply to the exercise of that proprietary interest or right.

- (2) This section applies to a right arising out of a proprietary interest or right in the same way as it applies to that interest or right.

#### **45. Management of protected areas**

- (1) The Principal Environment Officer is responsible for managing protected areas—
- (a) to the extent practicable, to provide for broad and meaningful participation by the community, public authorities and private interests;
  - (b) according to the principle that the integrity of an area is best conserved by protecting it from disturbance and threatening processes;
  - (c) so that use of the protected area does not diminish the potential of the protected area to meet the needs and aspirations of future generations;
  - (d) to promote public appreciation and understanding of the values of the protected area;
  - (e) so that use and enjoyment of the area does not compromise the values of the protected area;
  - (f) to promote appropriate research and monitoring; and
  - (g) in any way that may be prescribed by regulation.
- (2) Any management plan for a protected area must not be inconsistent with the management principles for the protected area set out in subsection (1).

#### **46. Management committees**

- (1) The Minister may establish committees under section 81 to assist in the management of protected areas.
- (2) Without limiting the generality of subsection (1), a committee established to assist in the management of a protected area or areas may be given functions to—
- (a) prepare a draft management plan for a protected area;
  - (b) make decisions relating to the management of the protected area that are consistent with the management plan in operation for the area;
  - (c) monitor the management of the protected area; and
  - (d) advise the Minister on the future development of the protected area.

**47. Management plans**

- (1) The Minister, acting in accordance with the advice of Cabinet, may make a management plan for a protected area by notice in the *Gazette*.
- (2) A management plan sets out the principles, practices and procedures necessary to manage the protected area, and may—
  - (a) state the activities that are allowed, prohibited or regulated in the area, and the means of allowing, prohibiting or regulating them;
  - (b) require the payment of fees and charges;
  - (c) include offences punishable by fines not exceeding \$100,000 or terms of imprisonment not exceeding five years, or both; and
  - (d) specify any limitation or prohibition on the exercise of a power or performance of a function under any Act in, or in relation to, the area.
- (3) Before making a management plan under subsection (1) the Minister must undertake any consultations that may be—
  - (a) required by Cabinet; and
  - (b) prescribed by regulation.
- (4) If a management plan limits or prohibits the exercise of a specified power, or the performance of a specified function, under an Act, the power or function is limited or prohibited in, or in relation to, the protected area while the plan is in operation.
- (5) The Minister must use his or her powers and functions to give effect to a management plan.
- (6) A public authority must not act inconsistently with a management plan.

**48. World Heritage**

- (1) The Minister, acting in accordance with the advice from Cabinet, may nominate areas to the World Heritage Committee established under the World Heritage Convention, for inclusion on the World Heritage list.
- (2) Before making a nomination under subsection (1), the Minister must—
  - (a) undertake any consultations that may be required by Cabinet;
  - (b) undertake any consultations that may be prescribed by regulation; and

- (c) use his or her best endeavours to reach agreement with any person who has a proprietary interest in the area proposed to be nominated on—
  - (i) whether the area should be nominated; and
  - (ii) the management arrangements for the area.
- (3) The Principal Environment Officer must publish a notice in the *Gazette*—
  - (a) if an area of Kiribati has been included in the World Heritage list; and
  - (b) if an area of Kiribati has been altered or withdrawn from the World Heritage list.
- (4) All World Heritage areas must be managed—
  - (a) in accordance with the obligations of the Republic under the World Heritage Convention to identify, protect, conserve, present and transmit to future generations the World Heritage and the outstanding universal value of the area;
  - (b) to give the World Heritage and the outstanding universal value of the area a function in the life of the community;
  - (c) to integrate the protection of the World Heritage and the outstanding universal value of the area into comprehensive planning programmes;
  - (d) to develop scientific and technical studies, and research and to establish methods to counteract threats to the World Heritage and the outstanding universal value of the area;
  - (e) to promote public appreciation and understanding of the World Heritage and the outstanding universal value of the area;
  - (f) to make special provision, if appropriate, for the involvement in managing the area of people who—
    - (i) have a particular interest in the area; and
    - (ii) may be affected by the management of the area.
- (5) The Principal Environment Officer must ensure that a management plan is in place for each area of Kiribati included on the World Heritage list.
- (6) Section 47 applies to the making and effect of a management plan for an area included on the World Heritage list as if the area were a protected area for the purposes of that section.
- (7) Any management plan for an area included on the World Heritage list must not be inconsistent with the management principles contained in subsection (4).

## PART VI—ENFORCEMENT

### Division 1—Enforcement Powers

#### 49. General provisions relating to environment inspectors

- (1) An environment inspector may only exercise his or her powers under this Act for the purpose of administering this Act.
- (2) Before or during the exercise of any power under this Act, an environment inspector must, if asked, provide his or her name and identification.
- (3) A person who falsely represents himself or herself to be an environment inspector commits an offence.  
*Maximum penalty: fine of \$10,000, imprisonment for two years*
- (4) A person who obstructs, intimidates, threatens, resists or hinders an environment inspector exercising or performing his or her powers, duties or functions under this Act commits an offence.  
*Maximum penalty: fine of \$10,000, imprisonment for two years*
- (5) An environment inspector may acquire assistance in the exercise of any power, duty or function under this Act.
- (6) No proceeding shall lie against an environment inspector, or any person assisting an environment inspector, for any act done in good faith and without gross negligence, in exercising or performing his or her powers, duties or functions under this Act.
- (7) An environment inspector may give reasonable directions and ask reasonable questions to any person to assist in the lawful exercise of any powers, functions or duties under this Act.
- (8) An environment inspector may use no more force than is necessary in exercising any powers, functions or duties under this Act.
- (9) The Principal Environment Officer may give environment inspectors directions as to the exercise or performance of any powers, duties or functions under this Act.

#### 50. Powers in relation to conveyances

- (1) For the purposes of testing a conveyance, an environment inspector may—
  - (a) direct the person in charge of the conveyance to stop or move the conveyance;
  - (b) enter and operate the conveyance;
  - (c) take photographs, video or other recordings of the conveyance; and

- (d) inspect or test the conveyance.
- (2) An environment inspector may exercise any of the following powers in relation to a conveyance for the purpose of detecting or preventing a contravention of this Act—
  - (a) any power contained in subsection (1);
  - (b) inspect and test any substance being carried by the conveyance;
  - (c) inspect and take samples, extracts or copies of any evidentiary material; and
  - (d) seize any evidentiary material.

**51. Powers in relation to items involved in international travel**

If an environment inspector reasonably believes that an item will be, is, or has been on a conveyance that travels between a place in Kiribati and a place outside Kiribati, he or she may—

- (a) examine the item;
- (b) open and search the item;
- (c) if the items are in a container, open and search the container; and
- (d) seize any evidentiary material.

**52. Powers in relation to premises**

- (1) An environment inspector may only enter residential premises if the environment inspector has—
  - (a) the consent of the occupier of the premises; or
  - (b) a search warrant allowing such activities.
- (2) An environment inspector may enter any premises, except for residential premises, for the purpose of detecting or preventing a contravention of this Act.
- (3) If an environment inspector lawfully enters premises, the inspector may—
  - (a) examine and search the premises and any equipment, structures, conveyances or other items on the premises;
  - (b) make examinations, inquiries and tests of any substance or thing;
  - (c) take photographs, films, audio, video and other recordings;
  - (d) require records to be produced for inspection;
  - (e) use any electronic equipment;
  - (f) inspect, and take samples, extracts or copies of any records or evidentiary material;

- (g) seize any evidentiary material; and
  - (h) take other action authorised by a search warrant.
- (4) A magistrate may issue a search warrant in relation to premises if the magistrate believes, based on information provided on oath, that—
- (a) a contravention of this Act has occurred, is occurring, or is likely to occur on premises; or
  - (b) there is evidentiary material on the premises.

### 53. Power to ask for information and records

- (1) The Principal Environment Officer may, by notice in writing, request a person to—
- (a) answer a question; or
  - (b) provide information or records in written or other form, for the purpose of any matter connected with this Act.
- (2) Any answer given, or information or record provided in response to a request under subsection (1) can not be used in any proceedings against that person.
- (3) A notice issued under subsection (1) must state that—
- (a) failure to comply with the request without reasonable excuse is an offence; and
  - (b) any answer given, or information or record provided in response to such request will not be used in any criminal proceedings against that person.
- (4) A person is not excused from complying with a request under this section on the ground that the answer, record or information might incriminate the person.

### 54. Arrest

- (1) An environment inspector may, without warrant, arrest any person, if the environment inspector reasonably suspects that the person—
- (a) is committing or has committed an offence against this Act and proceedings by summons against the person would not be effective;
  - (b) is committing, has committed, or is attempting to commit, an offence against this Act in the presence of the environment inspector.
- (2) An environment inspector must bring any person arrested under subsection (1) to the officer-in-charge of the nearest police station to be dealt with in accordance with the *Criminal Procedure Code*.

**55. Removal of litter**

If an environment inspector reasonably believes that a person has contravened section 12 (relating to littering), the environment inspector may require the person to remove the litter.

**56. Contravening a direction or request of environment inspector**

- (1) A person who does not comply with a reasonable direction or request of an environment inspector in exercise of a power under this Act, commits an offence.

*Maximum penalty: fine of \$500, imprisonment for one month*

- (2) In any proceedings for a contravention of subsection (1), it is a defence if the person against whom the proceedings have been brought establishes that he or she had a reasonable excuse for not complying with the direction or request.

**Division 2—Compliance Notices and Clean-up Notices**

**57. Compliance notices**

- (1) A compliance notice is a notice requiring a person to—
- (a) carry out specified actions by a particular time; or
  - (b) cease taking specified actions by a particular time.
- (2) An environment inspector may issue a compliance notice to a person who the inspector reasonably believes is contravening, has contravened, or is likely to contravene this Act if the inspector reasonably believes that the conduct required by the notice will prevent a contravention of this Act from occurring.
- (3) Without limiting the generality of subsections (1) or (2) a compliance notice may require—
- (a) the installation, repair, alteration, replacement, maintenance or operation of any equipment;
  - (b) modifying, or carrying out any work on equipment, structures or vehicles;
  - (c) ceasing to use equipment or vehicles or altering the way equipment or vehicles are used;
  - (d) ceasing to carry on or not commencing to carry on an activity;
  - (e) carrying on an activity in a particular manner or during particular times;
  - (f) monitoring, sampling or analysing any discharge of a substance or energy or otherwise ascertaining the nature, extent, or risk of such a discharge;

- (g) taking action with respect to the transportation, collection, reception, treatment, re-use, reprocessing, storage and disposal of any waste;
- (h) preparing and carrying out a plan of action to control, prevent or minimise waste; and
- (i) the reporting to the Principal Environment Officer on any result or progress of any activity.

**58. Clean-up notices**

- (1) An environment inspector may issue a clean-up notice to any person who the environment inspector reasonably believes has caused or allowed the discharge of a substance or energy if the environment inspector reasonably believes the notice will minimise or prevent the adverse effect of the discharge on the environment.
- (2) The clean-up notice must specify the actions that are required to be taken by the person to whom the notice is issued and the time by which they are to be taken.
- (3) Without limiting the generality of subsections (1) or (2), a clean-up notice may require—
  - (a) the taking of action to prevent, minimise, remove, disperse, destroy or mitigate the adverse effect of any discharge;
  - (b) the taking of action to restore the environment to a state that it was before the discharge;
  - (c) ascertaining the nature and extent of the discharge and of the actual or likely effects of the discharge;
  - (d) preparing and carrying out a remedial plan of action; and
  - (e) the taking of action to remove or store waste or litter.

**59. Failing to comply with notices**

- (1) A person who—
  - (a) has been issued a notice under this Division; and
  - (b) does not comply with the notice,commits an offence.

*Maximum penalty: fine of \$100,000, imprisonment for five years*

- (2) If the Principal Environment Officer reasonably believes that a person has committed an offence under subsection (1), the Principal Environment Officer must obtain authority from the Minister to take any action, either by directing environment inspectors, agents, contractors, or otherwise, to ensure that the actions or omissions required by the notice are carried out.

- (3) Any costs incurred by the Republic as a result of the taking of action under subsection (2) may be recovered from the person to whom the notice was issued as a debt due to the Republic.
- (4) Any person who has been directed by the Principal Environment Officer under subsection (2) may enter any premises at any reasonable time to give effect to the direction.
- (5) A person who obstructs a person directed by the Principal Environment Officer under subsection (2) while they are carrying out such direction, commits an offence.

*Maximum penalty: fine of \$10,000, imprisonment for two years*

### Division 3—Infringement Notices

#### 60. Infringement notices

- (1) If an environment inspector reasonably believes that a person has contravened this Act, the environment inspector may issue, in writing, an infringement notice to that person.
- (2) An infringement notice must set out the following information—
  - (a) the name and address of the person who has been issued with the notice;
  - (b) the date of the issue of the notice;
  - (c) the conduct resulting in the alleged contravention of the Act including—
    - (i) the day, and time (if appropriate); and
    - (ii) the place;
  - (d) the amount of money that can be paid to satisfy the infringement notice;
  - (e) a statement that if the person does not pay the amount of money to satisfy the infringement notice within 28 days, the person may be prosecuted for an offence;
  - (f) details of how, and where payment under paragraph (d) may be made;
  - (g) a statement that, if the amount of money is paid to satisfy the infringement notice in time—
    - (i) proceedings under this Act cannot be taken against the person for the contravention; and
    - (ii) the person is not taken to have been convicted of an offence; and
  - (h) the name of the environment inspector who issued the notice.

- (3) The maximum amount of money that can be required to be paid to satisfy an infringement notice is one-tenth the maximum fine that a court may impose upon conviction for the offence to which the infringement notice relates.
- (4) If a person pays the amount of money specified in the infringement notice in accordance with the procedure set out in the infringement notice, the person must be issued with a receipt stating that the infringement notice has been satisfied.

**61. Community service to satisfy an infringement notice**

- (1) An infringement notice may include information that, as an alternative to paying money, the infringement notice may be satisfied by undertaking a specified number of hours of community service.
- (2) The maximum number of hours of community service that can be required to satisfy an infringement notice is one hour for each \$20 of the maximum fine that a court may impose upon conviction for the offence to which the infringement notice relates.
- (3) If an infringement notice states that the notice may be satisfied by undertaking community service, the notice must set out the following information—
  - (a) how and where the person may notify an intention to undertake community service;
  - (b) that if the community service is not undertaken or not undertaken in a satisfactory manner, the person may be prosecuted for an offence.
- (4) If a person notifies an intention to undertake community service to satisfy an infringement notice the person must be given a written statement specifying where and when to report for community service.
- (5) If the person completes the required number of hours of community service to the reasonable satisfaction of the supervising officer, the officer must issue a receipt to the person stating that the infringement notice has been satisfied.

**62. Effect of satisfying an infringement notice**

If a person served with an infringement notice receives a receipt stating that the infringement notice has been satisfied—

- (a) proceedings cannot be taken against the person in respect of the conduct specified in the infringement notice; and
- (b) the person is not convicted of an offence.

### Division 4—Improvement Plans

#### 63. Improvement plans

- (1) An improvement plan is a plan to improve an activity so that it complies with environmental standards required by this Act.
- (2) The Principal Environment Officer may agree in writing with any person on an improvement plan for an activity carried on by that person.
- (3) An improvement plan must set out—
  - (a) the actions that are required to be taken by the person;
  - (b) the time by when the actions must be taken; and
  - (c) the period the improvement plan is in force.
- (4) An improvement plan may—
  - (a) exempt the person from having to comply with particular sections of this Act in relation to the activity while the person is acting in accordance with the improvement plan; and
  - (b) contain any other matter appropriate to the circumstances.
- (5) The Principal Environment Officer may amend an improvement plan by subsequent agreement with the person who made the improvement plan.
- (6) The Principal Environment Officer may terminate an improvement plan by notice in writing to the person who made the improvement plan.
- (7) A person who has agreed to an improvement plan and who breaches that plan commits an offence.

*Maximum penalty: fine of \$10,000, imprisonment for two years*

### Division 5—Other Authorisations

#### 64. Amending, suspending, revoking and withholding other authorisations

- (1) If the Principal Environment Officer reasonably believes that a person has contravened this Act, the Principal Environment Officer may recommend to any other public authority that a licence or other authorisation (however described) which is—
  - (a) issued by that authority; and
  - (b) held or proposed to be obtained by the person who is believed to have contravened this Act; and
  - (c) associated with the conduct or item involved in the contravention of this Act,be amended, suspended, revoked or withheld.

- (2) If the Principal Environment Officer makes a recommendation to a public authority under subsection (1), the public authority may amend, suspend, revoke or withhold the licence or other authorisation (however described) as the public authority thinks fit.

### **Division 6—Injunctions**

#### **65. Injunctions**

- (1) If a person has contravened, is contravening, or proposes to contravene this Act, any person may apply to a court for an injunction.
- (2) If the court is satisfied that a person has, is, or might contravene this Act, the court may grant an injunction—
  - (a) restraining the person from engaging in conduct which would constitute a contravention of this Act; or
  - (b) require the person to do an act, which if not done, would constitute a contravention of this Act.
- (3) If the court grants an injunction under subsection (2), the court may make an order requiring the person to do an act (including repairing or mitigating damage to the environment).
- (4) Before deciding an application under this section, the court may grant an interim injunction—
  - (a) restraining a person from engaging in conduct; or
  - (b) requiring a person to do an act.
- (5) On application, a court may discharge or vary an injunction or interim injunction.
- (6) Powers given to a court under this Act do not limit any other powers of the court.

## **PART VII—MISCELLANEOUS**

### **Division 1—Provisions relating to contraventions of the Act**

#### **66. Liability for offence**

Where a person commits an offence against a provision of this Act, or attempts to commit such an offence, that person shall be liable upon conviction to a fine not exceeding the amount specified immediately after the offence, imprisonment for not more than the period specified immediately after the offence, or both such fine and imprisonment.

**67. Continuing contraventions**

If there is a contravention of this Act that occurs over more than one day, each day that the contravention continues is a separate contravention.

**68. Mental elements of contravention**

Unless explicitly stated, no mental element need be proved to establish a contravention of this Act.

**69. Effect on existing civil rights and remedies**

This Act does not limit or alter any civil right or remedy that exists apart from this Act, whether at common law or otherwise.

**70. Act to bind the Government**

- (1) This Act affects the rights of and binds the Government
- (2) Each Ministry, department, agency, and instrumentality of the Government, is subject to, and shall comply with both the substantive and procedural provisions of this Act to the same extent as any person, but no Ministry, department, agency, or instrumentality of the Government shall be subject to any criminal sanction.

**71. Actions by corporations and other persons**

- (1) A contravention of this Act by a person—
  - (a) while an officer, employee or agent of a corporation or other person; and
  - (b) acting within the scope of his or her actual or apparent authority,is deemed also to be a contravention of that corporation or other person.
- (2) If a corporation or other person contravenes this Act, a director, officer, employee or agent of the corporation or other person who directed, authorised, assented to, acquiesced in or participated in the commission of the contravention, commits the contravention.

**72. Certain persons deemed to allow conduct**

- (1) The owner of, and the person in charge of or managing, a conveyance are deemed to allow any conduct involving the conveyance.
- (2) An occupier of premises is deemed to allow any conduct occurring on the premises.

**73. Offences also deemed to be civil wrongs**

- (1) Any conduct by a person which is an offence under this Act, is, by virtue of this section, also conduct which is a civil wrong.

- (2) Committing a civil wrong is not an offence.
- (3) A person must not—
  - (a) attempt or conspire to commit a civil wrong;
  - (b) aid, abet, counsel or procure or induce a person to commit a civil wrong; or
  - (c) be in any way party to the commission of a civil wrong.
- (4) A person who contravenes subsection (3) is deemed to have committed the civil wrong.
- (5) A court may not find a person to have committed an offence or civil wrong against this Act if a court has found the person to have committed an offence or civil wrong against this Act in relation to substantially similar conduct.

#### **74. Proceedings for a civil wrong**

- (1) Any person may apply to a court for an order that a person pay a monetary penalty for committing a civil wrong.
- (2) Rules of evidence and procedure for civil matters apply to proceedings under subsection (1).
- (3) If the court is satisfied that a person has committed a civil wrong, the court may order the person to pay a monetary penalty up to the maximum monetary penalty stated immediately after the offence which gives rise to the civil wrong.
- (4) Any monetary penalty must be paid into the Environment Fund under section 82 unless prescribed otherwise by regulation.

#### **75. Defences to contraventions of this Act**

- (1) It is a defence in any proceedings for a contravention of this Act if a person establishes that conduct giving rise to the contravention is allowed or required by—
  - (a) an environment licence;
  - (b) a management plan;
  - (c) an agreement made under section 43(4)(c);
  - (d) a direction or request of an environment inspector;
  - (e) a notice issued under Part VI, Division 2;
  - (f) an improvement plan under Part VI, Division 4; or
  - (g) an environment protocol made under Part VII, Division 2.

- (2) It is a defence in any proceedings for a contravention of this Act if a person establishes—
  - (a) that the contravention was not intentionally or knowingly caused or allowed and that all reasonable precautions were taken (if any were reasonable) to prevent the contravention; or
  - (b) that the contravention was reasonably necessary to deal with an emergency involving a serious threat to human life or property.
- (3) A defendant may only rely on a defence contained in subsection (2) if the defendant reported the contravention to the Principal Environment Officer as soon as practicable after the defendant knew that the contravention occurred.
- (4) A defendant must establish any defence or exemption contained in this Act by proving it on the balance of probabilities.
- (5) A person charged with a contravention of this Act must, no less than 14 days before the appointed date of hearing, notify the prosecution of an intention to rely on a particular defence contained in this Act.

#### **76. Evidence**

- (1) Any monitoring or recording equipment, or other instrument or installation used by an environment inspector (or any person directed or engaged by an environment inspector) is presumed to be accurate, precise and give a reading of the particular thing stated unless evidence to the contrary is presented.
- (2) Each attribute of a sample taken for any purpose under this Act is presumed not to be materially affected by its method of storage or preservation unless proven to the contrary.
- (3) An environment inspector may give evidence (without any need to call further opinion evidence) that the environment inspector formed the opinion based on the inspector's own senses that the discharge of noise, smoke, dust, fumes, light or odour caused unreasonable interference to the comfort of a person.
- (4) An allegation that an organism is a particular species shall be sufficient without proof of the matter, unless proven to the contrary.

#### **77. Expanded jurisdiction of magistrates' courts**

- (1) A magistrates' court shall have jurisdiction to hear any—
  - (a) criminal proceedings for a contravention of this Act;
  - (b) application under section 65 (dealing with injunctions); and

- (c) application under section 74 (dealing with civil wrongs), where the alleged conduct giving rise to the proceedings or application occurred, is occurring or may occur within the area over which such court has jurisdiction.
- (2) A magistrates' court shall have jurisdiction to make an order for a monetary penalty under section 74 not exceeding \$5000.
- (3) This section does not limit the jurisdiction or power of a court conferred by any other law.

#### **78. Additional powers of courts**

- (1) A court may order a person to pay an amount to the owner of any property (or if the property has no owner - the Republic), for any adverse effect caused to the property as a result of that persons contravention of this Act.
- (2) A court may order a person to clean up any substance, take actions, or pay an amount to the Republic for actual or anticipated costs, to remedy or mitigate any adverse effect caused as a result of the contravention of this Act.
- (3) A court may order, if a person does not pay an amount ordered to be paid within the time allowed, that any property of the person seized under this Act be sold to satisfy the amount.
- (4) A court may order payment of compensation to the Republic or any other person for costs involved in—
  - (a) investigation of the contravention of the Act;
  - (b) bringing court proceedings for the contravention; and
  - (c) seizing, storing, transporting or returning any evidentiary material.
- (5) A court may order the forfeiture of any evidentiary material to the Republic.
- (6) The powers under this section are in addition to and do not limit any other power of a court.

### **Division 2—Environment Protocols**

#### **79. Scope of environment protocols**

- (1) An environment protocol sets out what is and what is not environmentally acceptable in relation to any—
  - (a) environmental issue;
  - (b) area;
  - (c) activity that may affect the environment; or

- (d) substance that may affect the environment.
  - (2) An environment protocol may contain—
    - (a) methods for achieving what is and avoiding what is not environmentally acceptable; and
    - (b) any matter that is necessary or incidental to the effective operation of the protocol.
  - (3) Without limiting the generality of subsections (1) or (2), examples of environmental protocols include environmental protocols in relation to—
    - (a) the foreshore;
    - (b) standards for—
      - (i) maximum quantities of waste to be discharged into the environment;
      - (ii) maximum quantities of noise to be emitted; and
      - (iii) the installation and operation of works or equipment to control waste or pollution;
    - (c) measures designed to minimise the possibility of the occurrence of pollution; and
    - (d) methods of distributing limited numbers of licences under this Act.
  - (4) An environment protocol may—
    - (a) apply only to a certain area or at certain times;
    - (b) include offences punishable by fines not exceeding \$100,000 or terms of imprisonment not exceeding five years, or both; and
    - (c) require the payment of fees and charges.
- 80. Making and effect of environment protocols**
- (1) The Minister, acting in accordance with the advice of Cabinet, may make an environment protocol, by notice published in the *Gazette*.
  - (2) Before making an environment protocol under subsection (1), the Minister must undertake any consultations that may be—
    - (a) required by Cabinet; and
    - (b) prescribed by regulation.
  - (3) A public authority may not act inconsistently with an environment protocol.

### Division 3—Environment Committees

#### 81. Environment committees

- (1) The Minister has the power to establish environment committees.
- (2) The Minister may, by instrument in writing, establish an environment committee and determine—
  - (a) the members of the committee;
  - (b) the title of the committee; and
  - (c) the functions and roles of the committee to further the objects of this Act.
- (3) The Minister may, by notice in writing to an environment committee—
  - (a) determine any issues in relation to the meetings of the committee;
  - (b) determine any matters of procedure applying to the committee; and
  - (c) determine the entitlement of members of the committee to receive allowances (if any).
- (4) In the absence of any determination as to the procedures of a committee, the committee may determine its own procedures.
- (5) Any instrument made under this section must, in due course, be published in the Gazette.

### Division 4—Miscellaneous

#### 82. Environment Fund

- (1) A special fund, to be known as the Environment Fund, is established in accordance with section 107(2) of the *Constitution*.
- (2) There shall be paid into the Environment Fund such moneys as may be prescribed by regulation.
- (3) There shall be paid out of the Environment Fund any money approved by the Minister responsible for finance, on receipt of a request from the Minister, in accordance with—
  - (a) the objects of this Act; and
  - (b) any requirements that may be prescribed by regulation.
- (4) No money shall be paid out of the Environment Fund other than in accordance with a warrant under the hand of the Minister responsible for finance authorising the Chief Accountant under the *Public Finance (Control and Audit) Ordinance* to issue the money to the accounting officer responsible for operating the Fund.

- (5) The Minister responsible for finance shall, within six months after the end of each financial year, lay before the Maneaba ni Maungatabu a report dealing generally with the operations of the Special Fund during the preceding financial year and containing the audited statement of accounts for that financial year.

**83. Public register of applications, licences, etc.**

- (1) The Principal Environment Officer must keep a public register of every—
- (a) application for an environment licence;
  - (b) environment impact assessment report;
  - (c) environment licence;
  - (d) management plan;
  - (e) notice issued under Division 2 of Part VI;
  - (f) improvement plan;
  - (g) environment protocol; and
  - (h) any variation, suspension, termination and transfer of any of the above.
- (2) The Principal Environment Officer may exclude information from the public register to—
- (a) protect the environment;
  - (b) protect commercially sensitive information.
- (3) The public register must be made available to be inspected and copied during normal office hours.

**84. Statements as to whether an activity is complying**

- (1) Any person may apply to the Minister in writing for an opinion as to whether a particular person is complying, or has complied with this Act in relation to a particular activity.
- (2) Within 30 days after receiving an application under subsection (1), the Minister, acting in accordance with the advice of the Cabinet, must provide to the applicant an opinion as to whether the activity is complying or has complied with this Act, and the Minister must include a statement as to any actions the Republic is taking in relation to the activity to ensure compliance with this Act.
- (3) Any opinion under subsection (2) must be made available to be inspected and copied by members of the public during normal office hours.
- (4) Any opinion given under this section is not legally binding on the Republic.

**85. Appeals to the Minister**

- (1) Subject to subsection (5), any person who disagrees with a decision of the Principal Environment Officer or any environment inspector may, in writing within 30 days of the date of the decision, appeal against the decision to the Minister.
- (2) The Minister, acting in accordance with the advice of Cabinet, must—
  - (a) confirm the original decision; or
  - (b) vary the decision.
- (3) Any decision, remains valid while being considered by the Minister.
- (4) Any timeframe in a notice issued under Part VI, Division 2 does not run while an appeal in relation to that notice is being considered.
- (5) The regulations may prescribe decisions against which no appeal may be made.

**86. Regulations**

- (1) The Minister may, acting in accordance with the advice of the Cabinet, make regulations prescribing all matters permitted, necessary or convenient to be prescribed for carrying out or giving effect to this Act.
- (2) Without limiting the generality of subsection (1), regulations may be made—
  - (a) to give further effect to the object of this Act;
  - (b) to implement any international agreement, treaty, protocol, convention and other similar document relating to the environment;
  - (c) on procedures for seizure of items, and dealing with seized items;
  - (d) to provide for delegation of duties, powers and functions under this Act.
- (3) Regulations made under this section may prescribe or allow for penalties for offences, being terms of imprisonment not exceeding 10 years, fines not exceeding \$200,000, or both.”

**11. Existing authorisations**

An authorisation or exemption (however described), under the principal Act that is valid immediately before this provision enters into force, is deemed to be an environment licence allowing the same conduct and subject to the same conditions (if any).

## 12. Pending authorisations

Any application, initial environment evaluation, or environmental impact statement that has been validly made under the principal Act, and at the time this provision enters into force is deemed to be the corresponding instrument validly submitted in relation to an environment licence.

## ENVIRONMENT (AMENDMENT) BILL 2006

### EXPLANATORY MEMORANDUM

This Bill seeks to consolidate and improve the environmental laws of Kiribati by amending the *Environment Act* 1999. Lessons learnt in the implementation of the *Environment Act* since it entered into force in March 2000 have demonstrated the need for refinement of the Act, to allow for its application in a more effective and functional manner. In addition, the Bill contains legislative provisions necessary for the implementation of the following international agreements—

- ♦ the *Convention for the Protection of the World Cultural and National Heritage*;
- ♦ the *Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter*; and
- ♦ the *Convention on Biological Diversity*.

Clause 3 of the Bill inserts a number of new definitions into the interpretation section of the Act. Clause 4 introduces further refinement to the objects of the Act. New sections 4A and 4B are inserted by clause 5 to better clarify the application of the Act. The amendments to section 5 made by clause 6 establish the new position of Principal Environment Officer, who will play a major role in the administration of the Act. The powers of the Minister are restricted only to those of giving directions and policy guidelines; the implementation and administration of the Act is carried out by the Principal Environment Officer.

The most significant amendments are made to the Act by clause 10 of the Bill, which repeals and replaces Parts III, IV and V of the Act and inserts new Parts VI and VII.

The new Part III sets out the obligations of persons in protecting the environment. Issues such as pollution, the conduct of environmentally-significant activities (which will need to be carried out in accordance with the terms of an environment licence), conservation and World Heritage.

The replacement Part IV provides for the means by which environment licences are to be issued, and the matters to which consideration must be given. Depending on the scale and potential environmental impact of the activity, and applicant for an environment licence may need to first obtain an Initial Environmental Evaluation (IEE) or an Environmental Impact Statement (EIS). Licences will be subject to various conditions, to ensure that environmentally-significant activities are conducted with as little impact on the environment as possible.

A new Part V deals with conservation matters in greater depth. Species and ecological communities in need of protection are listed, and the means by which protected areas can be established are set out. This Part also covers matters provided for in the World Heritage Convention. It also provides for the making of management plans for protected areas and World Heritage Areas.

Part VI relates to enforcement of the Act. Environment inspectors are given powers to gather evidence and ensure compliance with the Act. It also provides for a range of tools to be used by environment inspectors and the Minister to encourage compliance with the Act. These tools are compliance notices, clean-up notices, infringement notices, mandatory audits and improvement plans. Part VI also provides that any offence under the Act is also a civil wrong which can be punished by a court. Bringing an action for a civil wrong uses civil rather than criminal procedures and standards of proof. This Part also allows for any person to bring an action in a court for a breach of this Act. Evidentiary provisions are set out, and the powers of the courts are clarified.

Part VII contains various miscellaneous provisions, covering such matters as: the maximum penalties for offences under the Act; the development of environment protocols; the establishment of environment committees; provisions for a special fund called the Environment Fund; appeals and the making of regulations.

Clauses 11 and 12 of the Bill provide for various transitional provisions. Existing and pending authorisations under the Act remain current, despite the changes.

Titabu Tabane  
Attorney-General  
19 October 2006

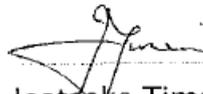
**CERTIFICATE OF THE CLERK OF THE MANEABA NI MAUNGATABU**

This printed impression has been carefully examined by me with the Bill which passed the Maneaba ni Maungatabu on 28 May 2007 and is found by me to be a true and correctly printed copy of the said Bill.



Ioataake Timeon  
Clerk of the Maneaba ni Maungatabu

Published by exhibition at the Maneaba ni Maungatabu this *04<sup>th</sup>* day  
of *September*, 2007.



Ioataake Timeon  
Clerk of the Maneaba ni Maungatabu

**Appendix 2: PIPA (Amendment) Regulations 2008**



**REPUBLIC OF KIRIBATI**

**ENVIRONMENT ACT 1999**  
as amended in 2007 (No 1 of 2007)

**PHOENIX ISLANDS PROTECTED AREA (AMENDMENT) REGULATIONS 2014**  
(Sections 43(1) and 86(1))

In exercise of the powers conferred by sections 43(1) and 86 (1) of the Environment Act 1999, as amended in 2007 (No 1 2007), and acting in accordance with the advice of the Cabinet, I hereby make the following Regulations:-

1. **Title**

These Regulations are called the Phoenix Islands Protected Area (Amendment) Regulations 2014.

2. **Amendment of Regulations 5**

The Phoenix Islands Protected Area Regulations 2008 is amended at Regulation 5 by repealing sub regulation (1) and substituting the following new sub regulation (1):-

**"5. Protected Area Prescription and World Heritage Nomination**

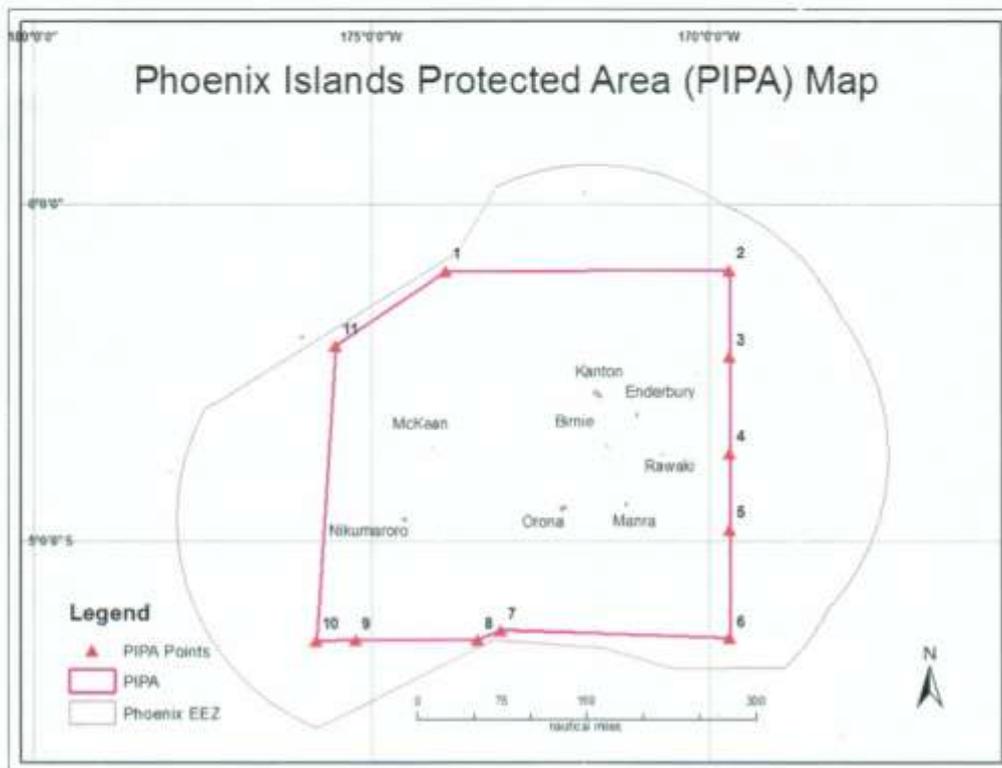
- (1) The Minister hereby prescribes the following area as an area protected for conservation and sustainable use purposes pursuant to section 43 of the Act-

Burnie Island  
Enderbury Island  
Kanton (otherwise known as Aberiringa or Canton) Island  
Manra (otherwise known as Sydney) Island  
Mckean Island  
Nikumaroro (otherwise known as Gardner) Island  
Orona (otherwise known as Hull) Island and  
Rawaki (otherwise known as Phoenix) Island

the lagoons and internal waters (if any) of each island, and those parts of the adjacent Kiribati territorial sea and exclusive economic zone within the area bounded by straight lines connecting the following points in the order stated.

**PIPA Boundaries**

Point LD	LATITUDE	LONGTITUDE
1	-0.9966017241	186.090242241
2	-0.9830000000	190.294000000
3	-2.2623495572	190.294000000
4	-3.6905216726	190.292043964
5	-4.8194574594	190.293952771
6	-6.4380788675	190.294000000
7	-6.3281818966	186.905809483
8	-6.4731818966	186.564809483
9	-6.4731818966	184.759809483
10	-6.4788840399	184.177654179
11	-2.1046017241	184.467242241



Dated this 31st day of December, 2014.



.....  
Hon Tiarite Kwong  
Minister of Environment, Lands  
Agricultural Development.

Published by exhibition at the Office of Te Beretitenti this 31st day of December, 2014.



.....  
Teea Tiira  
Secretary to the Cabinet.

- (3) This protected area shall also be nominated to the World Heritage Committee established under the World Heritage Convention, for inclusion on the World Heritage list.
  - (4) The Phoenix Islands Protected Area shall be recognised and managed as a Category Ib Wilderness Area according to the definitions, objectives for management, and guidance provided by the IUCN's 1994 *Guidelines for Protected Area Management Categories*. The relevant extract of the *Guidelines* is attached as appendix 1.
- 6. PIPA Management Committee and Management Plan**
- (1) The Minister shall establish a PIPA Management Committee, which shall be chaired by the Secretary of the Ministry, and shall comprise representatives of—
    - (a) the Principal Environment Officer;
    - (b) the Environment and Conservation Division of the Ministry;
    - (c) the Ministry's PIPA Office;
    - (d) the Ministries for the time being responsible for—
      - (i) fisheries;
      - (ii) the Phoenix Islands;
      - (iii) finance;
      - (iv) tourism;
      - (v) foreign affairs; and
      - (vi) commerce;
    - (e) the Office of the Attorney-General;
    - (f) the Kiribati Police Service; and
    - (g) the Atoll Research Centre of the University of the South Pacific.
  - (2) The PIPA Management Committee shall—
    - (a) prepare a draft management plan for the PIPA;
    - (b) resolve inter-agency differences and make recommendations to the Minister relating to actions associated with the management of the PIPA;
    - (c) provide such advice as the Minister may seek related to activities in the PIPA, including proposed development activities; and
    - (d) monitor the management of the PIPA and make such reports as the Minister might require to ensure compliance with the terms of the Act, these regulations, the PIPA management plan, and any international treaty agreements or third party contractual agreements entered into for the purposes sustaining the conservation and sustainable use of the PIPA.
  - (3) Within 12 months of the entry into force of these Regulations, the PIPA Management Committee shall develop and the Minister, acting in accordance with the advice of the Cabinet, shall adopt a PIPA management plan that is consistent with the Act, these Regulations, and any international treaty agreements or third party contractual agreements entered into for the purpose of sustaining the conservation and sustainable use of the PIPA.

- (4) The PIPA management plan shall identify such management zones and associated allowable activities as are appropriate for implementing the purposes of this regulation and the Act.
- (5) Except as provided in regulation 11 below, pending adoption of the management plan, no activity that takes place in or affects the PIPA or places at risk the ecological integrity of the PIPA shall be licensed, approved or undertaken by any public authority without the express written authorisation of the Minister.
- (6) As part of the management plan, and subject to available funding, the Minister shall develop and implement a monitoring program designed to ensure that the objectives of the Act, these Regulations, and the PIPA management plan are being accomplished.

**7. Marine conservation, management and development**

In addition to such other requirements as may be established by these regulations or the management plan, all provisions of Parts III, IV, V, VI, and VII of the Act shall fully apply within the PIPA at all times.

**8. PIPA Management Plan**

- (1) The objectives of the PIPA are specified in a management plan developed by the PIPA Management Committee and the Principal Environment Officer, in accordance with the provisions of Part V of the Act.
- (2) In addition to the management principles set out in section 45(1) of the Act, the PIPA management plan shall ensure that all activities that take place in the PIPA are designed for the benefit of present and future generations. To that end, the PIPA management plan shall implement such measures as are necessary for the following objectives—
  - (a) to conserve and manage substantial examples of marine and terrestrial systems to ensure their long-term viability and to maintain genetic diversity;
  - (b) to conserve depleted, threatened, rare or endangered species and populations and, in particular, to preserve habitats considered critical for the survival of such species;
  - (c) to conserve and manage areas of significance in the PIPA to the life cycles of economically important species such as tuna;
  - (d) to prevent human activities from detrimentally affecting the PIPA;
  - (e) to preserve, protect, and manage historical, cultural and archeological sites and natural aesthetic values;
  - (f) to facilitate the interpretation of marine and terrestrial systems for the purposes of conservation, education, and tourism;
  - (g) to accommodate within appropriate management regimes a broad spectrum of multi-use human activities compatible with the primary goal of marine and terrestrial conservation and sustainable use, including appropriate fishing, ecologically-sound tourism, and sustainable economic development;
  - (h) to provide for research and training and for monitoring the environmental effects of human activities, including the direct and indirect effects of development activities; and

- (i) to ensure consistency between all activities taking place in the PIPA and any third-party conservation contracts into which the Minister may choose to enter with the advice and approval of the Cabinet for the conservation and long-term sustainable use of the PIPA.

**9. Conservation and management measures**

- (1) All persons and corporations engaged in conduct in the PIPA must comply with all conservation and management measures as specified in the Act, these Regulations and the PIPA Management Plan.
- (2) All public authorities are obliged to conduct all activities within the PIPA, or that are likely to have effects on the PIPA, consistently with the Act, these Regulations and the PIPA Management Plan.
- (3) The PIPA Management Plan shall be consistent with any international obligations or agreements relating to the environment entered into by Kiribati.
- (4) Additional conservation and management measures may be specified by the Minister or in the PIPA Management Plan as required.

**10. PIPA permit, licence and penalty provisions**

- (1) With respect to any activity having an effect or the potential for an effect on the PIPA, all licences, permits, or other approvals issued by the Minister, as well as any other licence, permit, or approval issued by any other public authority, shall be consistent with the provisions of the PIPA management plan, these Regulations and the Act.
- (2) In addition to any other licence, permit or approval required by the Act, and subject to further specification in the PIPA management plan, the following permit and licence requirements shall be in force in the PIPA and implemented as part of the management activities in the PIPA—
  - (a) scientific, cultural, or educational studies – special permission is required from the Principal Environment Officer for conducting any scientific or educational study within the PIPA;
  - (b) collection of specimens – special permission is required from the Principal Environment Officer for the collection of any scientific specimens or samples from the PIPA;
  - (c) special permits – any special permission must be obtained from the Principal Environment Officer prior to the start of any activity. Special conditions may be attached to the permit including reporting requirements. The Principal Environment Officer shall promptly notify the PIPA Management Committee of all special permits in force for the PIPA protected area;
  - (d) the PIPA management plan shall further specify permits, the conditions of permits and the process for obtaining permits for visitors to the PIPA for the purposes of diving, visiting the atolls in the PIPA, and recreational fishing; and
  - (e) the PIPA management plan shall further specify fees schedules for any processing or use fees associated with PIPA permits and licences.

- (3) In addition to the offences set out in Part III of the Act, the PIPA management plan shall establish such additional offences punishable by fines not to exceed \$100,000 or terms of imprisonment not to exceed five years, or both, that are considered necessary to enforce the practices and procedures established in the PIPA management plan. Any violation of those practices or procedures shall constitute a violation of these regulations and the Act.
- (4) The Principal Environment Officer shall have primary responsibility and authority to commence civil, criminal, injunctive, or other action against any person or corporation reasonably believed to be in violation of the Act, these regulations, or the PIPA management plan.
- (5) The Principal Environment Officer shall have the primary responsibility and authority to amend, suspend, revoke or withhold any licence or other authorisation issued to a person or corporation reasonably believed to be in violation of the terms of their licence or authorisation, the terms of the PIPA management plan, these Regulations or the Act.

#### **11. Savings and transitional**

Distant water fishing nation tuna fishing access licences and agreements shall remain valid in the PIPA, and tuna fishing activities carried out pursuant to those licences and agreements shall continue in the PIPA according to their terms, until and unless otherwise decided by the Cabinet.

#### **12. Miscellaneous**

- (1) The Minister, in consultation with the PIPA Management Committee and the Principal Environment Officer, shall issue a report on the state of the PIPA every five years. The report shall include the following environmental and management indicators—
  - (a) bird population trends;
  - (b) bird nesting pairs population trends;
  - (c) live coral cover trends;
  - (d) selected reef fish population trends;
  - (e) reef shark population trends;
  - (f) turtle population trends;
  - (g) pelagic conditions within the PIPA, including fisheries landings trends;
  - (h) annual visitor number trends; and
  - (i) such other matters as the PIPA Management Committee shall choose to report.
- (2) The Minister may require, by written notice, a licensee or permittee, public authority, or other person to present information relevant to the report. Such person or entity shall comply with a request of the Minister within one month of receiving it.

Appendix 1

Extract - Guidelines for Protected Area Management Categories (IUCN, 1994)

*Category I - Strict Nature Reserve/Wilderness Area: protected area managed mainly for science or wilderness protection*

Category Ib - Wilderness Area: protected area managed mainly for wilderness protection

**Definition:** Large area of unmodified or slightly modified land, and/or sea, retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition.

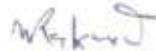
**Objectives of Management:**

- to ensure that future generations have the opportunity to experience understanding and enjoyment of areas that have been largely undisturbed by human action over a long period of time;
- to maintain the essential natural attributes and qualities of the environment over the long term;
- to provide for public access at levels and of a type which will serve best the physical and spiritual well-being of visitors and maintain the wilderness qualities of the area for present and future generations; and
- to enable indigenous human communities living at low density and in balance with the available resources to maintain their lifestyle.

**Guidance for Selection:**

- The area should possess high natural quality, be governed primarily by the forces of nature, with human disturbance substantially absent, and be likely to continue to display those attributes if managed as proposed.
- The area should contain significant ecological, geological, physiogeographic, or other features of scientific, educational, scenic or historic value.
- The area should offer outstanding opportunities for solitude, enjoyed once the area has been reached, by simple, quiet, non-polluting and non-intrusive means of travel (i.e. non-motorised).
- The area should be of sufficient size to make practical such preservation and use.

Dated this 7<sup>th</sup> day of February, 2008.



HON. TETABO NAKARA  
Minister for Environment, Lands  
and Agricultural Development

Published by exhibition at the Office of the Beretitenti this 14<sup>th</sup> day of February, 2008.



TAAM BIRIBO  
Ag Secretary to the Cabinet

**Permit Application to the Government of Kiribati for activities in the Phoenix Islands Protected Area**

Please submit your application for the type of activity to carry out in the Phoenix Islands Protected Area Office (address to: Director, Phoenix Islands Protected Area, email: [pipaoffice@phoenixislands.org](mailto:pipaoffice@phoenixislands.org), Fax: 686 28334 or 29762; Tel: 686 29762)

*A. Provide detailed information on the following topic areas in your application:*

1. Name of applicant.
2. Full contact details of sponsoring institution and individuals.
3. Dates for activity (ties)
4. Location. Include island names, latitude and longitude as well as names of locations, if known.
5. What is your proposed itinerary and method of transport in Kiribati?
6. Background of activity to carry out.
7. Objectives of proposed activity in the Phoenix Islands Protected Area
8. Describe details of your activities.
9. What is your plan for Kiribati participation in this activity?

*B. What type of activity you are going to carry out in the PIPA. Please tick the appropriate box*

<input type="checkbox"/>	Research
<input type="checkbox"/>	Tourism:
	<input type="radio"/> Bird watching <input type="radio"/> Diving <input type="radio"/> Amateur radio <input type="radio"/> Filming <input type="radio"/> Other (please explain):
<input type="checkbox"/>	Specimen Collection
<input type="checkbox"/>	Special Activity. Explain

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*Permit Conditions (to be written at the back of the permit))*

1. Permit to be issued upon payment of fee
2. Permit holder has to comply with the visitors guidelines, and biosecurity protocols when entering the PIPA
3. Permit holder conducting research should produce a preliminary report within two months of completion of this activity and a final report within 12 months. Copies of all publications must be provided to Kiribati at the time of publication.
4. Permit holder, person or entity shall comply with the request of the Principal Environment Officer to present information on the report or on any other information needed. Such report/information should be provided within one month.

5. Vessels entering PIPA to conduct research, recreational and other permitted activities should carry PIPA observers. Travel costs to and back from the vessel including seagoing allowance when at sea should be paid by the permit holder.
6. Permit holder /vessel operator should provide the list of passengers, their nationality, profession, purpose for visit and email contact details.
7. All payments should be paid to the PIPA Administration Account, ANZ Bank, Tarawa Kiribati.

Appendix 4:



Government of the Republic of Kiribati

**BOOMA IBUKIN KARIAIAN TE ROKO IAON ABAN TE PIPA**

IAAN TUAN TE ENWAEROMENTA – PIPA REGULATIONS 2008 AO TUAN ABAN TE PIPA AE TE PROHIBITED ACT – AO TUAN TE KUARANTIN AO A KABAEAKI BWATINTIA MA AOMATA NAKO AKE A NA NAKO ABAN TE PIPA AIKA WANUIA (8) BWA A RIAI NI KANO A RAOI TE BOOMA AEI. AKE A KUNEAKI BWA AKI KARAOA AIO AO A NA AKI KONA NI WAERAKE IAON ABAN TE PIPA MA A NA TIKU N TATANINGA IAON BAOIA TE KAIBUKE KE TE WANIKIBA NI KAROKOA OKINA. AKE A KUNEAKI N URUI TUAN AABA AIKAI A NA BON KATUAEAKI N ARON TEIN TUUA IAAN TUUA AKE A OTI I ETA.

BUKIN KARAOAN TE BOOMA AIO BON KAKOROAN TAIAN TUA IBUKIN KAMANOAN AONON TE PIPA AE ANA OKAI-NI-MARAWA KIRIBATI AE A TIA N RIN IAAN TE WORLOAD HERITAGE BWA NGAIA NGKAI TE KABANEA NI BUBURA AO N NANO N OKAI-NI-MARAWA N TE AONNABA.

TE OI NI KANTANINGA BON TOTOKOAN MAAN AO AROKA AIKA IAI AIA URUBWAI NAKON TE REITANIMAIU IAON ABAN TE PIPA, AO TOTOKOAN NABA MWAKURI N URUBWAI AO N ANAI BWAI NGKAI ABAN TE PIPA NI KABANE A BANE N TABUAKI URUAN BWAIN AO MARIN AONA NI MOA MAN BAIKA A MAIU AO AIKA AKEA TE MAIU INANOIA MA I KABIN MARAWANA AO AON ABANA NI KABANE.

**A. RONGORONGOM**

1. ARAM AO AM KAOUA N ARA AE KO KINAAKI IAI: \_\_\_\_\_
2. ABAM: \_\_\_\_\_
3. BONG NI BUNG: \_\_\_\_\_

**B. TAEKAN MWANANGAM**

1. KO TOKARA BAOM TERA (name of vessel/flight number): \_\_\_\_\_
2. KO TOKARA BAOM MAI IAA? \_\_\_\_\_
3. TERA ABAN TE PIPA AE KO NA NAKO IAI? \_\_\_\_\_
4. TE BONG AE KO MWANANGA IAI (departure date): \_\_\_\_\_
5. TE BONG AE KO NA KITANA ABAN TE PIPA IAI? \_\_\_\_\_

**C. KABWARABWARAN UOTAM AO BUKIN MWANANGAM NAKON ABAN TE PIPA.**

**1. IAI UOTAM N ARON AIKAI?**

- I. AMWARAKE AIKA MAIU N ARON UANIKAI? \_\_\_\_\_
- II. AMWARAKE N ARON BAA-NI-KAI? \_\_\_\_\_
- III. AMWARAKE N ARON BUKINIKAI? \_\_\_\_\_
- IV. AMWARAKE AIKA IRIKO NI MAN AIKA A MAIU? \_\_\_\_\_
- V. MAAN AIKA MAIU (n aron te beeki, te moa, te katamwa, etc)? \_\_\_\_\_
- VI. AROKA AO ATI AIKA A MAIU (n aron uaan te nii, te mai, te kaina, te bero, uee, etc)? \_\_\_\_\_
- VII. BWAANI NI MWAKURI IAON TANO (n aron te tiabora ma te beke, etc)? \_\_\_\_\_
- VIII. BAO NI MWAMWANAGA (n aron te bwatika, rebwewebwe, etc)? \_\_\_\_\_
- IX. BAIKARA RIKI AM BWAI AIKA UOTAM NAKON ABAN TE PIPA? \_\_\_\_\_

2. KABWARABWARA RAOI BUKIN ROKOM IAON ABAN TE PIPA (kaotia bwa te tia mwakuri ngkoe, ke ko roko ni kawariia kain am utu ao ni iangoa te tiku, ke ko roko n noria am utu/raoraom ao ko na manga oki, ke ko roko bwa iangoan wakinan am bitineti ao tera te bitineti anne, ke ko ti rinanon te PIPA ni ira kawain baom [transit], etc): \_\_\_\_\_


**KAURING AIKA A KAKAWAKI**

1. KANOA RAOI TE BOOMA AEI MA TE KOAUA AO ANGA AM IBUOBUOKI NAKON ANA TIA MWAKURI TE PIPA IAON KANTON KE IAON ABAN RIKI TE PIPA AKE TABEUA;
2. IAI MWAAKAN TE BUREITIMAN NI KATIKA AO N TOTOKOA RUON TE AOMATA MAI IAON TE BAO NGKANA E KUNEAKI BWA E AKI KAKOROI NANON BAIKA A KAINNANOAKI INANON TE BOOMA AIO KE E KARAOA TE TOTOKO NAKON TUOAN ANA BWAI;
3. URINGA ARE A TABUAKI UOTAKINAKOAN AO KUMEAKIN BWAIN ABAN NAKO TE PIPA AIKA A MAIU (fresh fish or pet fish) AO AKE A TIA NI MATE (preserved or salted fish) AO AKE BON AKEA TE MAIU INANOIA, A BANE N TABUAKI UOTAKIIA NAKO MAI ABAN NAKO TE PIPA AIKA WANIUA (8) N ARON AE MWAKORO IAAN TUAN NAKO TE PIPA;
4. A KAWAKINAKI MAN KAMANOAKI ABAN NAKO TE PIPA BWA A NA AKEA MAAN AIKA URUBWAI N ARON TE KIMOA, TE BITERE, TE KINNONGO AE BAABOBO (yellow crazy ant), AO MAAN RIKI TABEUA MA AROKA AIKA KONA NI UOTA TE URUBWAI NAKON ANA OTABWANIN AO TE REITANIMAIU NAKON ABAN NAKO TE PIPA;
5. A TABUROROKO WAAKI NI BITINETI AKE A NA ROTAKI IAI KAUBWAIN MA MARIN TE PIPA N ARON ANAKIN TE BAI NI BAKOA, TE KEREBOKI, IKA AIKA MAIU (pet-fish), AO TABEUA RIKI;
6. A TABUAKI WAKI N NEWEABA AKE A NA URUBWAI NAKON MARIN NAKO ABAN TE PIPA (n aron kumeaia mannikiba ma anaakin bunnimoaia, kanakiiia mannikiba, karenakoan maange n aki akaka, te beka n aki akaka, uruakan ao anaakin bwain auti ake akea aomata ma kaaia, ao tabeua riki.);
7. NGKANA IAI TE AKI OOTA NI KANOAAKIN TE BOOMA AIO AO TUUA RIKI TABEUA IBUKIN KAMANOAN ABAN MA MARAWAN NAKO TE PIPA AO REITAKI MA ANA TIA MWAKURI TE PIPA (PIPA Biosecurity Officer) KE TE BUREITIMAN IAON KANTON AO ABAN NAKO TE PIPA ARE KO NA NAKO IAI.

TE PIPA BON ABAN TE TAUTAeka AE KAMANOAKI IAAN TUAN KIRIBATI AO TUAN TE WORLD HERITAGE.

TE PIPA BON ANA OKAI-NI-MARAWA KIRIBATI AE TI RIAI NI BANE NI BUOKA KAWAKINANA MA KAMANOANA.

KATEIMATOAN KAWAKINAN TE PIPA BON KAWAEKOAN REKEN TAIAN KABWAIA ARE A NA BANE NI KABWAIA IAI KAIN KIRIBATI NGKAI AO NAKON TAAI AIKA NA ROKO.

**TEKERAOI TE MWANANGA**

**Kanton Community Agreement Sample**  
(With PIPA Inputs)

The purpose of the Kanton Community Agreement is to ensure the people on Kanton to live in peace, order and harmony at all times and in all respect to natural and historical resources that have made Kanton Island part of the Phoenix Islands Protected Area, which stands now as the largest and deepest Marine Protected Area in the UNESCO World Heritage.

- (1) To promote social order, alcohol drinking prompting disorder is banned and those found causing disorder while under the influence of liquor will be fined \$50.00;
- (2) To promote food security:
  - a) Each household to plant 100 coconut seedlings every year;
  - b) Each household to contribute towards sustaining the Food (imported foods and other cargoes) Warehouse by first contributing the amount of \$250 outside households' own food supply. In times of food delayed ship and cargo shortage, then the warehouse will serve the basic needs of the people of Kanton and the sales will form a Revolving Fund to sustain the Warehouse service;
  - c) No accumulated salted fish in households as fish is ready available and harvesting should be limited to daily needs. The salt fish quantity should not go beyond one bag of rice sack per household at all times and those found keeping more than one sack will be fined the amount of \$50;
- (3) To protect and preserve biodiversity:
  - a) All commercial fishing for sharks and beche-de-mer and other forms of commercial activities involving natural resources or other commercial activities that would harm natural and the biodiversity are banned. Those found engaged in any of these activities would be fined the amount of \$50;
  - b) No undersized lobsters to be harvested. The standard size should be no more than 10cm from the eye of the lobster to its carapace and those found will be fined \$30;
  - c) Bird catching for pest or food is banned and those found will be fined \$50;
  - d) Birds' egg collection and consumption is banned and those found will be fined \$50;
  - e) Beach mining is banned and those found will be fined \$20;
- (4) To protect and preserve the cultural and historical items and sites:
  - a) No physical destruction of old houses and those found breaking parts or all of these houses will be fined \$50;
  - b) No physical transformation and modification of existing infrastructure other than those already physically damaged and modified earlier than this Agreement (May 2013). Those found modifying these infrastructures will be fined \$50;
  - c) No physical damage and modifications to all identified cultural and historical items and sites and those found damaging and modifying these will be fined \$50;

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Signed: Teitikai Baraniko  
Elder on behalf of Kanton Community  
May 2013

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Teweti Taliu  
Police Officer  
May 2013

Appendix 6

**Social Indicators**

Indicator	Parameter	Periodicity	Location of Record
PIPA Management Committee Function	No of meetings  Stakeholder review of decisions implemented	Continuous	PIPA Office, MELAD
Visitor Number Trends & Permit Monitoring	Permit Monitoring (tourism, research)	Continuous	Kanton Immigration, PIPA Office MELAD, CI
Surveillance & Enforcement and Penalties	Fisheries S & E report  Infraction Report (at least annual)	Annual	PIPA Office, MELAD Fisheries, Kiribati Maritime Police
Financial Management	Annual audit of funds secured and spent on PIPA.	Annual	PIPA Office, MELAD

**Marine Indicators**

Indicator	Parameter	Periodicity	Location of Record
Coral Reef Health	Coral cover, benthic cover	Previous (2000,2002,2005, 2009, 2012) @ 4 years	PIPA Office, MELAD NEAq, CI
	Coral Diversity and Health (Disease, Bleaching)	Previous (2000,2002,2005, 2009, 2012) @ 4 years	PIPA Office, MELAD NEAq, CI
	Water temperatures	Continuous water temperature loggers since 2000, satellite data, continuous since 1990s.	PIPA Office, MELAD NEAq, CI
Selected indicator Reef Fish and threatened species e.g. clams	Diversity, Abundance, Size class structure, Endemism	Previous (2000,2002,2005) @ 4 years	PIPA Office, MELAD NEAq, CI
Sharks	Diversity Abundance Lagoon nursery populations	Previous (2000,2002,2005) @ 4 years	PIPA Office, MELAD NEAq, CI
Turtles	Diversity Abundance – nesting surveys	Previous (2000,2002,2005, 2009, 2012) @ 4 years	PIPA Office, MELAD NEAq, CI
Tuna/Offshore Fishing	Effort Catch Bycatch	Continuous by GoK Fisheries as part of DWFN management, note 100% observer coverage is now mandatory in Kiribati waters.	Fisheries, SPC/FFA, PIPA Office, MELAD
Submerged Reefs/Seamounts	Baseline surveys Species diversity And abundance	2002 (partial survey down to 900 m)	NEAq, PIPA Office, MELAD

Appendix 6 (cont.,)

**Terrestrial Indicators**

<b>Indicator</b>	<b>Parameter</b>	<b>Periodicity</b>	<b>Location of Record</b>
Seabirds	Species Diversity and relative abundance using pelagic transects and fly-on surveys of key indicator species Population Surveys by prescribed counts of colonies and nesting pairs	Previous (1960s, 2006, 2008), Future - species diversity opportunistically Population counts at least every 3-5 years	PIPA Office, MELAD NEAq, EcoOceania, CI
Terrestrial biota	Vegetation – photo-points, plant lists Vertebrate fauna (lizards, land-birds, shorebirds) - relative abundance, counts	Previously 1960s, 2006 2008 Future – at least every 3-5 years	PIPA, MELAD, EcoOceania
Invasive species	Species presence and abundance Eradication monitoring Monitoring key indicator species amongst seabirds (above)	Previous (2000,2002,2006, 2008, 2009, 2011) Future annually as part of atoll restoration until at least 2012 then every 3-5 years where possible using existing charters and biosecurity patrols.	PIPA Office, MELAD, NEAq, EcoOceania, CI

**Appendix 7: IUCN Red List for Kiribati for Endangered Species for Kiribati**

(source: <http://www.iucnredlist.org/>, cited February 24, 2007)

Species	Common Name	Status
<i>Eretmochelys imbricata</i>	Hawkbill turtle	Critically endangered
<i>Birgus latro</i>	Coconut crab	Data deficient
<i>Feresa attenuata</i>	Pygmy killer whale	Data deficient
<i>Lagenodelphis hosei</i>	Fraser's dolphin	Data deficient
<i>Mesoplodon densirostris</i>	Blainville's beaked whale	Data deficient
<i>Mesoplodon ginkgodens</i>	Ginkgo-toothed beaked whale	Data deficient
<i>Steno bredanensis</i>	Rough-toothed dolphin	Data deficient
<i>Thunnus alalunga</i>	Albacore tuna	Data deficient
<i>Xiphias gladius</i>	Swordfish	Data deficient
<i>Alopias vulpinus</i>	Thresher shark	Data deficient
<i>Echinorhinus brucus</i>	Bramble shark	Data deficient
<i>Chelonia mydas</i>	Green turtle	Endangered
<i>Cheilinus undulatus</i>	Giant wrasse	Endangered
<i>Pterodroma alba</i>	Phoenix petrel	Endangered
<i>Prosobonia cancellata</i>	Tuamotu sandpiper	Endangered
<i>Vini kuhlii</i>	Kuhl's lorikeet	Endangered
<i>Pterodroma cookii</i>	Cook's petrel	Endangered
<i>Acrocephalus aequinoctialis</i>	Bokikokiko	Least Concern
<i>Actitis hypoleucos</i>	Common sandpiper	Least Concern
<i>Anas acuta</i>	Northern pintail	Least Concern
<i>Anas chlypeata</i>	Northern shoveler	Least Concern
<i>Anas platyrhynchos</i>	Mallard	Least Concern
<i>Anas strepera</i>	Gadwall	Least Concern
<i>Anous minutus</i>	Black noddy	Least Concern
<i>Anous stolidus</i>	Brown noddy	Least Concern
<i>Arenaria interpres</i>	Ruddy turnstone	Least Concern
<i>Branta canadensis</i>	Canada goose	Least Concern
<i>Bulweria bulwerii</i>	Bulwer's petrel	Least Concern
<i>Calidris acuminata</i>	Sharp-tailed sandpiper	Least Concern
<i>Calidris alba</i>	Sanderling	Least Concern
<i>Calidris melanotos</i>	Pectoral sandpiper	Least Concern
<i>Ducula pacifica</i>	Pacific imperial-pigeon	Least Concern
<i>Eudynamys taitensis</i>	Long-tailed koel	Least Concern
<i>Fregata ariel</i>	Lesser frigatebird	Least Concern

Appendix 7: IUCN Red List for Kiribati for Endangered Species for Kiribati

Species	Common Name	Status
<i>Gygis alba</i>	Common white-tern	Least Concern
<i>Gygis microrhyncha</i>	Little white-tern	Least Concern
<i>Heteroscelus incanus</i>	Wandering tattler	Least Concern
<i>Larus atricilla</i>	Laughing gull	Least Concern
<i>Larus delawarensis</i>	Ring-billed gull	Least Concern
<i>Larus pipixcan</i>	Franklin's gull	Least Concern
<i>Limosa lapponica</i>	Bar-tailed godwit	Least Concern
<i>Numenius phaeopus</i>	Whimbrel	Least Concern
<i>Oceanites oceanicus</i>	Wilson's storm-petrel	Least Concern
<i>Oceanodroma castro</i>	Band-rumped storm-petrel	Least Concern
<i>Oceanodroma leucorhoa</i>	Leach's storm-petrel	Least Concern
<i>Pelagodroma marina</i>	White-faced storm-petrel	Least Concern
<i>Phalaropus fulicarius</i>	Grey phalarope	Least Concern
<i>Pluvialis fulva</i>	Pacific golden-plover	Least Concern
<i>Procelsterna cerulea</i>	Blue noddy	Least Concern
<i>Puffinus nativitatis</i>	Christmas Island shearwater	Least Concern
<i>Stercorarius pomarinus</i>	Pomarine jaeger	Least Concern
<i>Sterna albifrons</i>	Little tern	Least Concern
<i>Sterna bergii</i>	Great crested-tern	Least Concern
<i>Sterna fuscata</i>	Sooty tern	Least Concern
<i>Sterna lunata</i>	Grey-backed tern	Least Concern
<i>Sula dactylatra</i>	Masked booby	Least Concern
<i>Sula leucogaster</i>	Brown booby	Least Concern
<i>Hippopus hippopus</i>	Bear paw clam	Lower risk, conservation dependent
<i>Stenella longirostris</i>	Long-beaked dolphin	Lower risk, conservation dependent
<i>Tridacna maxima</i>	Small giant clam	Lower risk, conservation dependent
<i>Tridacna squamosa</i>	Fluted clam	Lower risk, conservation dependent
<i>Carcharhinus falciformis</i>	Silky shark	Low risk, least concern
<i>Kogia sima</i>	Dwarf sperm whale	Low risk, least concern
<i>Thunnus albacares</i>	Yellowfin tuna	Low risk, least concern
<i>Carcharhinus amblyrhynchos</i>	Gray reef shark	Low risk, near threatened
<i>Carcharhinus melanopterus</i>	Blacktip reef shark	Low risk, near threatened
<i>Galeocerdo cuvier</i>	Tiger shark	Low risk, near threatened

Appendix 7: IUCN Red List for Kiribati for Endangered Species for Kiribati

Species	Common Name	Status
<u><i>Isurus oxyrinchus</i></u>	Shortfin mako	Low risk, near threatened
<u><i>Prionace glauca</i></u>	Blue shark	Low risk, near threatened
<u><i>Pseudocarcharias kamoharai</i></u>	Crocodile shark	Low risk, near threatened
<u><i>Sphyrna lewini</i></u>	Scalloped hammerhead	Low risk, near threatened
<u><i>Triaenodon obesus</i></u>	Whitetip reef shark	Low risk, near threatened
<u><i>Ducula oceanica</i></u>	Micronesian imperial-pigeon	Near Threatened
<u><i>Epinephelus fuscoguttatus</i></u>	Brown-marbled grouper	Near Threatened
<u><i>Epinephelus polyphekadion</i></u>	Camouflage grouper	Near Threatened
<u><i>Thunnus obesus</i></u>	Bigeye tuna	Vulnerable
<u><i>Rhincodon typus</i></u>	Whale shark	Vulnerable
<u><i>Nesofregetta fuliginosa</i></u>	Polynesian storm-petrel	Vulnerable
<u><i>Tridacna gigas</i></u>	Giant clam	Vulnerable
<u><i>Epinephelus lanceolatus</i></u>	Brindle bass	Vulnerable
<u><i>Numenius tahitiensis</i></u>	Bristle-thighed curlew	Vulnerable