



PHOENIX ISLANDS PROTECTED AREA

KIRIBATI

Management Plan 2010 – 2014

Foreword

Kiribati is an ocean nation. We have ocean-faring tradition going back 1000s of years traversing the shared history of Micronesia and Polynesia peoples in the central and South Pacific. The sea and islands are our blood.

In this new millennium in which humanity has reached the limits of the planet we share and our activities are changing the very climate that nurtured us, we recognize the shared future that all people on the planet face. With this in mind, we have established the Phoenix Islands Protected Area affectionately known as the “ PIPA” with two goals in our mind and hearts.. One is as a real commitment to living sustainably in our environment, to learn and show how nature and people can function harmoniously where distance and isolation are both the challenge and the saving grace. Secondly, as a symbol for how the world’s people must come together to sustain our common future; this is our gift to humanity, from a country that is humble by number of people and size of economy, but rich in ocean heritage. PIPA is what we can give to a shared future with others that says ‘this is what we believe in’, ‘this is a belief we would like to share with other peoples of the world’.

The Phoenix Islands, lying in the heart of the Pacific Ocean, contain 8 out of our 33 islands Kiribati and constitute 11.34% of Kiribati’s Exclusive Economic Zone (EEZ). PIPA was born through the hard work and shared vision of many people and institutions, both from within Kiribati and internationally. In a few short years it has gone from just an idea to one of the largest marine protected areas in the world. The most important foundation for this has been that while the islands have supported different people over their history, their small size and isolation - even by Pacific standards - has meant they have not been able to support permanent human settlements. And because of this isolation, the islands and seas around them have retained a pristine condition that few other islands have been able to. Recognizing that this was not only significant to Kiribati but to the world, my government has founded PIPA in partnership with New England Aquarium (NEAq) and Conservation International. Together we have put together the expertise and the framework to protect and sustain these islands in a way that benefits our economy and people and the partnership is growing with governments and agencies from around the world supporting the PIPA.

This Management Plan is the core expression of that our commitment. Compiled over more than two years of hard work and consultations, it condenses all the elements that are necessary to maintain PIPA as a pristine set of islands in the middle of a vast ocean. From laws to staffing to enforcement to monitoring to financing, it summarizes all the elements needed to manage and maintain the Phoenix Islands. Backed up by an Endowed Trust, that raises investment funds to maintain PIPA values intact, and laws enacted in Kiribati Parliament, this Management Plan shows how we are committed to keeping our part of the planet intact, for the betterment of the Kiribati people and the world.

This Management Plan is the expression of the Kiribati’ peoples’ commitment to take care of our planet for the good of mankind. We welcome your support.

President Anote Tong
Republic of Kiribati
November 2009

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 408,250 sq.km (157,626 sq.miles) with the adoption of the PIPA Regulations 2008. 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 the aim to ensure the sustainable financing needed for the conservation and management of PIPA is well established.

The PIPA Management Plan 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 2010 – 2014.

Chapters 1 to 3 provides background information on PIPA including its location in the world, 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 plan for the next four years (2010 – 2014). The plan provides the framework, actions and targets to implement PIPA's Management Objectives through the implementation of this Plan. The three key components of the strategic action plan (SAP) include: PIPA Core Management; PIPA "Issues to Results" and the State of PIPA report required by 2014.

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 summarized as at January 2010 and a target state is identified for this Plan (SAP 2.1 – SAP 2.7) by no later than 2014, 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 2014 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 2015.

PIPA Management Plan Process

The first PIPA Management Plan was completed and approved by the then Phoenix Island Steering Committee (PISC) in December 2007. The plan was the outcome of the consultations made with key stakeholders government ministries and other stakeholders including Non Government Organizations (NGOs).

With the adoption of the PIPA Regulations 2008, which significantly expanded the area to be conserved and formally constituted a multi government agency PIPA Management Committee together with clear goals of management the Management Plan, a revision of the 2007 plan was agreed. This updated plan was also formulated to be consistent with World Heritage Convention requirements for protected areas listed as natural sites. Kiribati submitted PIPA for World Heritage listing in January 2009 and the PIPA was inscribed on the World Heritage List as a natural site in August 2010.

With the adoption of the PIPA Regulations in February 2008, the PISC was renamed the PIPA Management Committee (PIPA-MC). 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 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

Partners, such as Conservation International (CI) and New England Aquarium, regularly participate in the PIPA MC providing technical expertise and advice.

The PIPA Management Plan 2010 - 2014 is the outcome of the PIPA Management Committee's meetings, workshops and consultations with the PIPA partners and other stakeholders. This 5 year plan will be reviewed late in 2014 and learning and issues arising will be incorporated into an updated Plan from 2015.

Acknowledgements.

The Government of Kiribati is grateful to its partners and supporters, in particular New England Aquarium (NEAq) and Conservation International (CI), Kiribati Government Ministries, members of the PIPA Management Committee, NGOs, and other individuals who have assisted in the drafting of this Plan. Much of the descriptive information used in the Plan has been drawn from the Compilation of Reports Related to the Phoenix Islands prepared by GoK/NEAq/CI including the various reports on research expeditions conducted by NEAq and CI and the PIPA World Heritage nomination dossier. The contribution of those individuals from Kiribati and outside in the preparation of the Plan are gratefully acknowledged.

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
COP	Conference of Parties
CRISP	Coral Reef InitiativeS in the Pacific
DSL	Deep Scattering Layer
DWFN	Distant Water Fishing Nation
ECD	Environment and Conservation Division (MELAD)
EEZ	Exclusive Economic Zone
EIC	Equatorial Intermediate Current
EN	Endangered IUCN Red List category
ENSO	El Niño-Southern Oscillation
FAD	Fish Aggregating Device
FFA	Forum Fisheries Agency
FSP	Foundation of the Peoples of South Pacific
GBRMPA	Great Barrier Reef Marine Park Authority
GCF	Global Conservation Fund of Conservation International
GEIC	Gilbert Ellice Island Colony
GEF	Global Environment Facility
GLISPA	Global Island Partnership
GoK	Government of Kiribati
IAS	Invasive alien species
IBA	Important Bird Area of Birdlife International
IFAW	International Fund for Animal Welfare
IUCN	International Union for the Conservation of Nature
KANGO	Kiribati Association of Non-Governmental Organisations
KBA	Key Biodiversity Area of Conservation International
MDG	Millennium Development Goals
MELAD	Ministry of Environment, Lands & Agricultural Development
MFMRD	Ministry of Fisheries, Marine Resource and Development
MIC	Micronesians in Island Conservation
MLPID	Ministry of Line and Phoenix Islands
MOU	Memorandum of Understanding
MPA	Marine Protected Area
NBSAP	National Biodiversity Strategy and Action Plan
NDS	National Development Strategy
NEAq	New England Aquarium
NGO	Non Government Organisation
NOAA	National Oceanic and Atmospheric Administration
NSCC	North Subsurface Countercurrent
NZ	New Zealand
NZ-DOC	New Zealand Department of Conservation
NZODA	New Zealand Overseas Development Agency
PA	Protected Area

PAS	Pacific Alliance for Sustainability
PCB	Polychlorinated Biphenyl
PIF	Project Identification Form
PII	Pacific Invasives Initiative
PIPA	Phoenix Islands Protected Area
PIPA-MC	Phoenix Islands Protected Area Management Committee
PISC	Phoenix Islands Steering Committee
POP	Persistent Organic Pollutants
RNHP	Regional Natural Heritage Programme of Australia
SAMTEC	The Space and Missile Test Center
SECC	South Subsurface Countercurrent
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
UNFCCC	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
UNDP	United Nations Development Programme
USFMT	US Fisheries Multilateral Treaty
VMS	Vessel Monitoring System
VU	Vulnerable IUCN Red List Category
WCO	Wildlife Conservation Ordinance
WCU	Wildlife Conservation Unit
WHC	World Heritage Convention
WSSD	World Summit on Sustainable Development
WWII	World War II
WWF	World Wide Fund For Nature
nm	nautical mile

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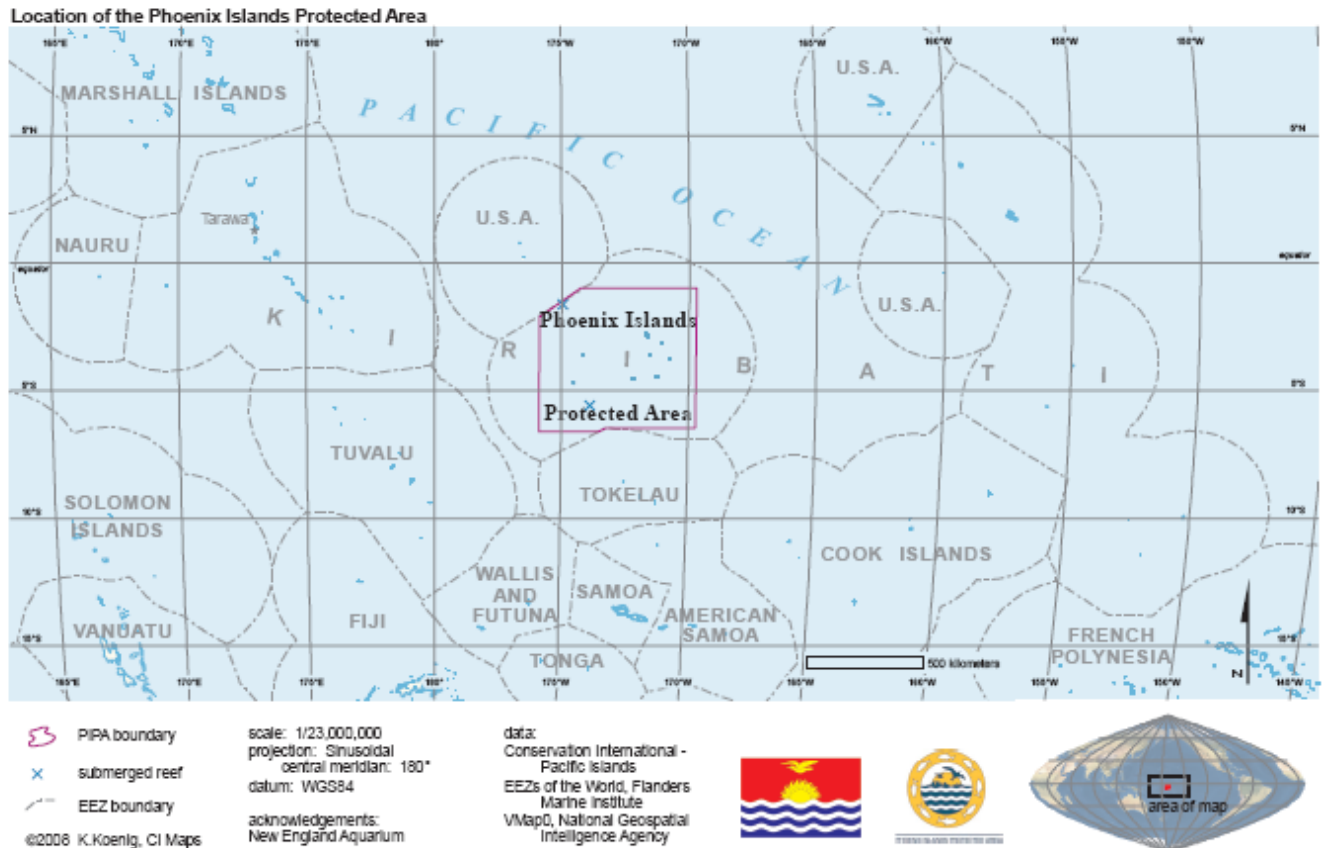
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CHAPTER 1. THE PHOENIX ISLANDS PROTECTED AREA (PIPA)

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.

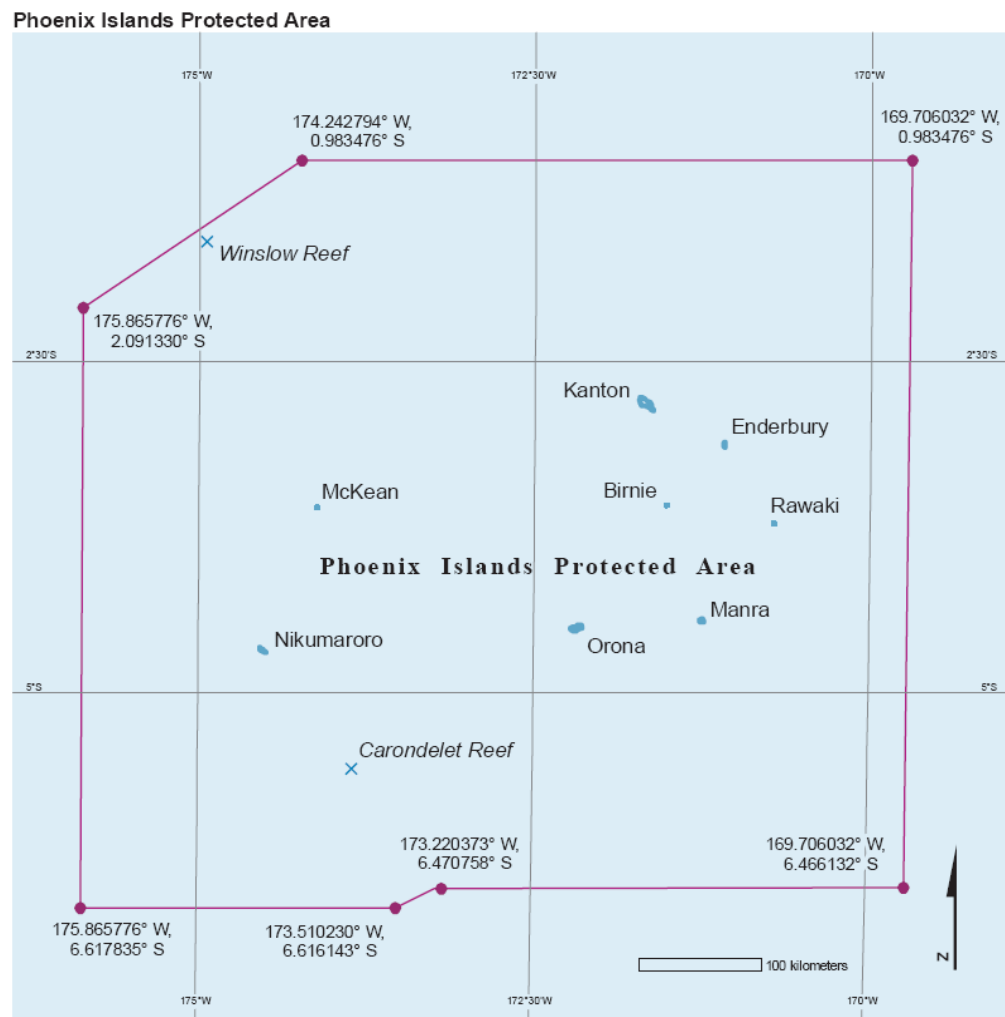


The Phoenix Island group is situated between the Gilbert Islands to the west and the Line Islands to the east, extending across the centre of Kiribati. Two of the Phoenix Islands, Howland and Baker, are low reef islands in the adjacent territory of the United States to the north of Kiribati.

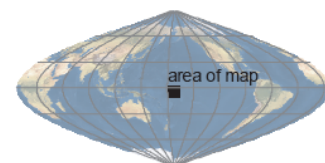
PIPA's boundaries consists of a heptangular (7 corner points) shaped area that encompass about 408,250 sq km including 8 atoll/reef islands, two submerged reefs and at least 14 identified seamounts and their surrounding mainly deep water marine area. PIPA constitutes 11.34% of Kiribati's Exclusive Economic 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 Carondelet, and at least 14 known seamounts together with open ocean 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



-  PIPA boundary
-  PIPA coordinate
-  atoll
-  submerged reef



scale: 1/5,000,000
projection: Sinusoidal
central meridian: 180°
datum: WGS84

data:
Conservation International - Pacific Islands
VMap0, National Geospatial Intelligence Agency

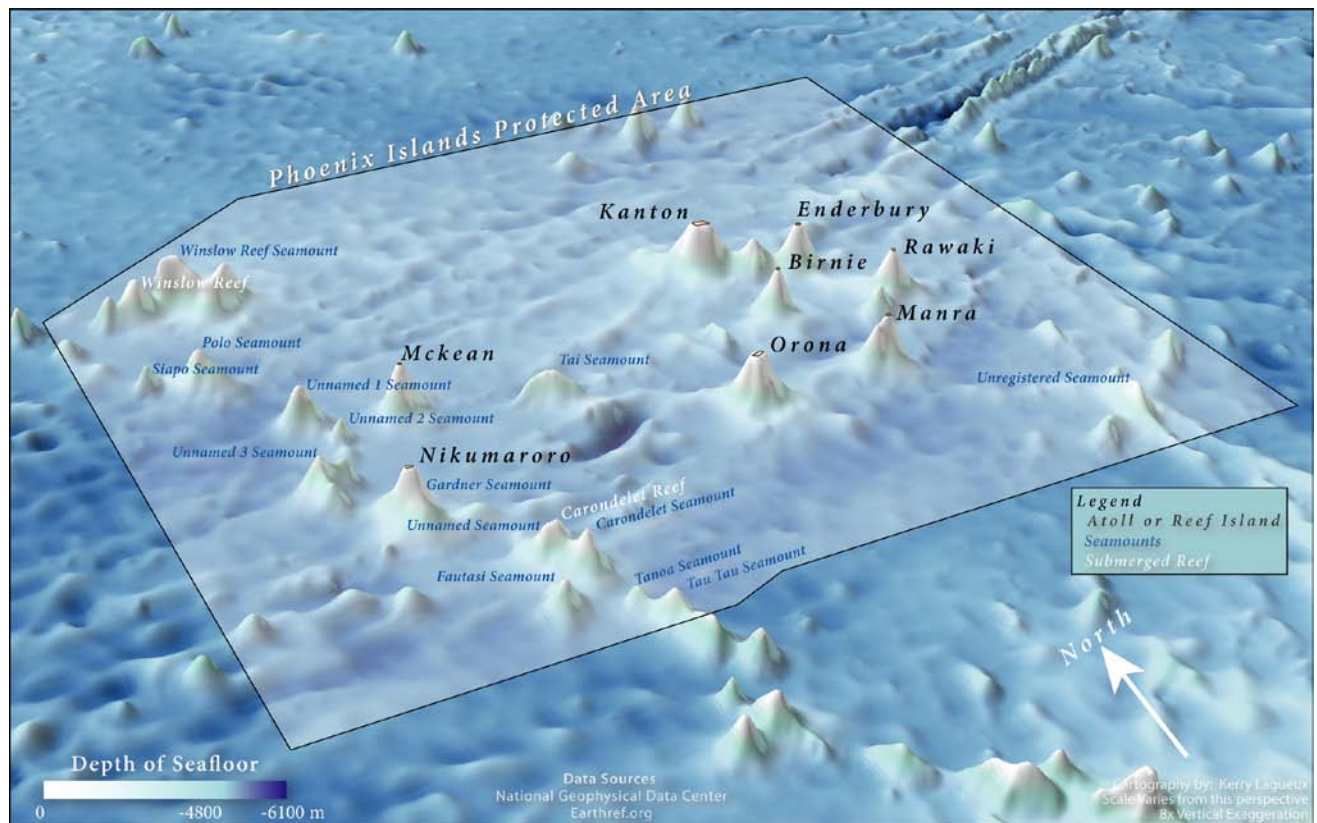
acknowledgements:
New England Aquarium

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PHOENIX ISLANDS PROTECTED AREA

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 km²

Total land area: c. 25.51 km²

Total designated area: **408,250 km²**

Table 1. PIPA Island Areas & Geographic Coordinates

Island & Geographic Coordinates	Total area (ha)	Land area (ha)
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;	-	c.900

171°37.4'W to 171°43.4'W		
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 (Appendix 3). PIPA is established with a total area 408,250 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).

Interim PIPA Management Measures have been agreed to by the PIPA Management Committee since PIPA was first declared in 2006. The PIPA Regulations 2008 require that "pending adoption of this [PIPA] 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." Section 6(5) of the PIPA Regulations 2008. Distant Water Fishing Nation (DWFN) tuna fishing fleets operating under valid licenses and agreements are not subject to the PIPA Regulation 2008 or the PIPA management plan with respect to their fishing activities, unless specifically decided otherwise by the Cabinet. Section 11 of the PIPA Regulation 2008.

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.

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. In the early 2000s legal and illegal shark fishing occurred in many of the Phoenix Islands. After the PIPA declaration in 2006, all shark fishing has been terminated. In 2006 one illegal shark fishing vessel was identified and caught. There is no inshore fishery in the Phoenix Islands since the termination of the Kakai scheme in the early 2000s, except for some subsistence fishing by the government caretakers and their families on Kanton (maximum 50 inhabitants). Coral reefs were impacted by bleaching events in 2002 and 2004. These bleaching events did not appear to impact fish populations or diversity. 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 and 2004, 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 and 2004, 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 recently noted decline in sea turtle populations may be attributable to the illegal shark fishing operations in the early 2000s. With the 2006 capture of an illegal shark fishing vessel, the termination of all inshore commercial fishing projects, and the declaration of PIPA and its active management, sea turtle populations should recover.
- (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.
- (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. An initial assessment of harmful exotic species was completed in 2006 (see Pierce et al 2006). Plans have been approved for a phased approach to the removal of harmful exotic species in the Phoenix Islands with the first successful eradications completed in 2008. As harmful exotic species are removed and biosecurity strengthened, seabird colonies should recover. In addition, on Kanton, harmful Persistent Organic Pollutants (POPs) were removed in 2006 which should also be beneficial to sea bird populations there especially in conjunction with pest removal. The islands are also important as non-breeding and transient areas for migratory shorebirds.
- (10) Population of Phoenix petrel (Endangered) and white-throated storm-petrel (Vulnerable) on Rawaki and potentially on Enderbury and McKean, and all islands are important non-breeding habitat for the bristle-thighed curlew (Vulnerable).
- (11) 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.
- (12) 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. However, they have yet to be explored.
- (13) Unique cultural history reflecting ancient Polynesian and Micronesian exploration and settlement of the Pacific, 19th 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).

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 (408,250 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 trophic 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.

1.7 Summary of PIPA Management Planning

Phoenix Islands Management pre-2005

The only previous management plan for the Phoenix Islands was prepared by Garnett in 1983. It focused mainly on terrestrial resources and was never effectively implemented. Birnie, Kanton, Enderbury and Orona were identified as “prohibited areas” under the Prohibited Areas Ordinance 1957 (Cap 77), which had the effect of prohibiting entry but did not require or contemplate active management measures. Portions of Kanton were also declared protected under the Closed Districts

Act 1990, although the principal objective of this declaration was to allow the orderly development of the atoll. Finally, Rawaki, Birnie and McKean were declared as wildlife sanctuaries under the Wildlife Conservation Ordinance (WCO). This statute protected wildlife from human interference but did not protect wildlife habitats. Various specified bird species and the green turtle were protected under this statute on many of the Phoenix Islands, although again active management was not an element of the program.

PIPA Management 2005-2007

In August 2005, the GoK and partners New England Aquarium (NEAq) and Conservation International (CI) agreed a Memorandum of Understanding (MOU) to design and establish PIPA. This was based on results of two scientific expeditions and extensive consultations amongst the partners. GoK formally declared the PIPA in March 2006. Apart from DWFN activities, from 2006 until February 2008, all activities in PIPA were overseen and decided upon by the Phoenix Islands Steering Committee (PISC). While the focus of this Committee's effort was on the design and full establishment of PIPA, numerous management decisions and protective measures were also instigated during this time including:

- 2005 assessment of coral reef bleaching recovery and associated reef and atoll monitoring
- 2006 assessment of status of protected bird species
- 2006 assessment of impact of invasive species and feasibility of priority eradications, and
- 2006 prosecution of illegal shark finning

PIPA Management 2008- 2009

PIPA was legally created by the Phoenix Islands Protected Area Regulations 2008, which were promulgated pursuant to the terms of the Environment Act 1999, as amended by the Environment (Amendment) Act 2007 (Appendix 3). Management of PIPA is governed by the terms of the PIPA Regulation 2008 and the provisions of Division 2 of the Environment Act 1999, as amended, that prescribe management requirements for all protected areas created under the act.

Pursuant to the terms of the Environment Act 1999 (as amended 2007) and the PIPA Regulation 2008, PIPA is administered by the Minister of the Ministry of Environment, Lands and Agriculture Development (MELAD). Direct management of the PIPA is under the responsibility of the Secretary of MELAD, who serves as the Principal Environment Officer under the Environment Act 1999 (as amended 2007). Further, in accordance with these laws the Minister of MELAD has constituted a PIPA Management Committee (PIPA-MC), comprised of representatives of all government agencies and other specified non-government entities with a responsibility for the Phoenix Islands (Appendix 2). The PIPA-MC is chaired by the Secretary of MELAD and it meets regularly with meeting decisions and follow-up implementation documented and reported by the Director of the PIPA Office.

The PIPA Regulations 2008 specify that the PIPA-MC is responsible, among other duties and tasks, for development of the PIPA management plan within twelve months of the regulations coming into force. This Management Plan is fulfilment of that obligation.

While this Management Plan has been under development, the PIPA-MC agreed and successfully implemented, with various partners, a range of interim management actions which implement PIPA Regulations (2008) and are aimed at increasing protection of PIPA. These include:

- Invasive Species Eradication Mission (New Zealand Overseas Development Agency (NZODA), New Zealand Department of Conservation (NZ-DOC), MELAD, Pacific Invasive Initiative (PII) Pacific Expeditions) in 2008 (Pierce et al 2008)
- Visitor Permit system and associated Rules and Fees
- Research Permit System and associated Rules and Fees

- Tourism Operator Permit system and associated Rules and Fees
- Completion of PIPA Resource Valuation, Endowment Strategy and Trust Fund legislation,
- PIPA World Heritage Nomination
- A range of enforcement and surveillance activities including successful prosecution of illegal vessel and response to a potentially serious vessel grounding on Kanton Atoll.

The PIPA Management Committee has developed and finalised this Management Plan with support from the PIPA Office and partners CI, NEAq and expertise provided by the Governments of Australia and New Zealand.

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 Airforce (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 Earhardt 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 20th 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 DFWN 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 PIPA Management Plan 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. The current or baseline zonation of PIPA with respect to full “no-take” areas amounts to 3.87% of the total PIPA marine area (Figure 4). During the next phases of implementing the PIPA Management Plan, Kiribati intends to zone an additional 25% of the MPA as a no-take zone as a measure to conserve tuna stocks.

Although there are no domestic commercial offshore fisheries currently operating in PIPA, any future development of domestic commercial fishing licenses will be conditioned to reflect the government’s decision to prevent further commercial exploitation of these resources.

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.

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 this 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 (Figure 4). On Kanton subsistence fishing is permitted to meet the needs of the local caretaker population. There are no domestic commercial inshore fisheries currently operating in PIPA, any future development of domestic commercial inshore fishing licenses will be conditioned to reflect the government’s decision to prevent further commercial exploitation of these resources.

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 with a total population is about 40.

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 is sperm whales. In the early 19th 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. Feasibility studies and prioritizations have been carried out for invasive species management in PIPA and the first two highest priority eradications (the rabbit, *Oryctolagus cuniculus*, from Rawaki, and the Asian rat, *Rattus tanezumi*, from McKean) were carried out in 2008, but their long term success has yet to be confirmed. Priority actions for additional restoration in the Phoenix Islands (see Pierce et al 2006) include:
 - Eradicate the Pacific rat, *Rattus exulans*, from Birnie.
 - Eradicate the Pacific rat, *Rattus exulans*, from Enderbury.
 - Eradicate cats (and rodents if present) on Orona.
 - Complete biosecurity planning and ensure ongoing implementation.
- 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. Surveillance and enforcement of these inshore areas together with offshore fishing is a significant ongoing challenge for PIPA.

- 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 3rd 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. 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 eg 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 eg Tarawa have been cleared of military waste due to the threat it poses to local fisherman 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 PIIPA.

- 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 strategy to develop tourism in a safe, sensible and sustainable manner is a key action area within this management 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 local, global, and visitor awareness – The Kiribati people are not completely familiar with all the attributes of the PIPA and there is a need for education and awareness programmes so all are kept informed about the special features of the Phoenix Islands and about progress in managing this area. Local support for PIPA in Kiribati is essential for its success. In addition, the awareness of the global community needs to be improved regarding PIPA and its many unique features. Many know of the declaration of PIPA, but many more need to be made aware of the unique resources and features of the Phoenix Islands. Visitors to the Phoenix Islands need to be informed about PIPA. They can also be enlisted to assist in monitoring activities on the islands.
- 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 tourism and fisheries 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. GoK also wishes to keep the option of ocean mining operations open. Any development activities should be sustainable and executed in an environmentally friendly manner consistent with the PIPA Regulations 2008.

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.

- 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. Internet is available to marine vessels so a similar system could be installed on the Phoenix Islands.
- 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.
- Developing effective biosecurity for the Phoenix Islands.
- 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. Major considerations are needed for all activities involving placement of people on the Phoenix Islands, whether this is for short term (such as for research surveys) or long term (for management purposes).

CHAPTER 3. PIPA MANAGEMENT PLAN 2010 – 2014:

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 2010 -2014

To implement the long term PIPA Management Objectives the following Strategic Action Plan (SAP) Framework for 2010-2014 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 2010-2014

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 Regulations (2008)

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

The initial authority for designating PIPA as a Protected Area was by decision of the GoK Cabinet in early 2006. This authorized the Minister of Environment, Lands and Agricultural Development, the Hon. Martin Puta Tofinga to declare the PIPA at the Biodiversity Convention 8th Conference of the Parties in March 2006 in Brazil.

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 3). At this time, the Cabinet approved extension of the PIPA area from the originally declared 187,600 sq. km. protected area to 408,250 sq. km. making PIPA the world's largest 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'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.

The MELAD Minister provides regular reports to GoK's Cabinet on PIPA's management, progress and issues arising and has created a PIPA 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 future.

SUMMARY: For this Plan (PIPA Management Plan (2010-2014) 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). This committee was previously recognized as the PISC (PIPA Steering Committee) under the design phase of PIPA.

The PIPA-MC 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 PIPA 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

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, and its predecessor the PISC, have 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:

- Preparation of draft PIPA Management Plan,
- 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.

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 (2010-2014) 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 PIPA Director and the PIPA Office is based at MELAD in Bikenibea (Tarawa). The PIPA Director is responsible for the day-to-day operation of the PIPA. The PIPA Office has utilized a range of consultants and staff during its first 4 years of operation. In this Plan the PIPA Office will be expanded and additional capacity and resources placed on Kanton Atoll. This includes a close working relationship fostered with the MELAD Wildlife Unit and the Agriculture Division on Kiritimati in the Line Islands.

Resources for this expansion are expected from the United Nations Environment Program (UNEP) Global Environment Facility (GEF) Pacific Alliance for Sustainability (PAS) funding and associated co-financing to PIPA for the period 2010-2014. In the next PIPA Management Plan (2015 onwards), the ongoing cost of core PIPA staffing and operation is expected to be covered from the PIPA Trust Fund endowment income. GoK and its NGO partners have agreed a phased approach to management activities and additional restrictions of current DWFN activities in the PIPA so that endowment capital growth will produce adequate income to cover agreed PIPA management costs, trust fund costs and compensation for loss of license revenue from DWFNs.

- PIPA Office – MELAD Tarawa

Core staffing: - PIPA Director, Secretary, Education/Outreach/Communication Officer, PIPA Monitoring 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 Division on Kiritimati. This position also provides a secretarial role to the PIPA MC.

Infrastructure requirements: the PIPA Office is already established. Additional infrastructure will be limited to equipment for the office eg computers, desks, chairs and resources for its ongoing operation eg internet, phone etc.

- PIPA Office – Kanton Atoll

Core staffing: two PIPA officers and their families (if any).

Core role: Work with the existing roles of the caretaker staff on Kanton but also locally responsible for surveillance and enforcement, biosecurity, visitor education and management, monitoring and Kanton atoll resource utilization.

Infrastructure requirements: housing, office space, surveillance boat, satellite phones etc will be required. Priorities in this Plan will be a boat suitable for surveillance of Kanton Atoll and its surrounds and communication equipment suitable to work with Kiribati Fisheries, Maritime Police and the PIPA office to monitor the wider PIPA area and to work with surveillance and enforcement effort.

It is realized that this vessel alone is insufficient for the surveillance and enforcement requirements of PIPA. Options for a larger boat suitable for PIPA/Phoenix EEZ-wide surveillance and enforcement (and resource monitoring) will be investigated. This will be combined with efficient design, and operation, of remote surveillance capacity through Kiribati's Fisheries programme.

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

In many respects Kiritimati Atoll is a gateway to the Phoenix Islands. In particular biosecurity measures should be planned and implemented in a complementary way for both the Phoenix and Line Islands. Resourcing and staffing requirements for an effective collaboration between the Wildlife Unit and PIPA will be investigated and implemented (as required).

- 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 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
Kiribati Ministry of Fisheries	• Management of fishing effort in allowed zones • Marine resource surveillance and enforcement • Coral reef and marine monitoring
Environment and Conservation Division	• Environmental monitoring and impact assessment • Environmental and other conventions • Terrestrial, birds and invasive species (through Wildlife Conservation Unit (WCU), Kiritimati) • Coral reef and marine monitoring
Agriculture	• Biosecurity and IAS issues
Kiribati Maritime Police	• Surveillance and enforcement services
Kiribati Tourism	• Tourism promotion of PIPA, tourism planning and feasibility study • Tour operator/Visitor Management
Office of the Attorney General	• Legal services
Cross-cutting	• International conventions – hosted with the relevant government focal point/Department • Climate Change

Any other agencies and activities not specified above may be specified by the PIPA-MC and/or Minister.

- Existing government services, Kanton

Existing government services on Kanton will play a role in management, surveillance and enforcement of PIPA regulations. These include a police and customs officer, nurse, school teacher, wireless operator and meteorology officer. Additional budget allocations for Phoenix Islands work include Maritime Police Surveillance by the patrol vessel (including Phoenix Islands EEZ) and shipping service to Kanton en route to and from Kiritimati Atoll.

During 2010 a description and costing will be completed for each of the above services, including promoting synergies and linkages between the various agency roles and responsibilities. The source of funding will be specified, including those from PIPA financing and from existing budget allocations from the National Treasury. Services that are to be contracted under this Management Plan will be costed and agreed on an annual basis under the auspices of the MELAD Minister. Modalities for financing these costs will be outlined in each annual workplan (e.g. from endowment income, grants, penalties, permits, fines, allocation from other ministries/departments).

SUMMARY: For this Plan (PIPA Management Plan (2010-2014) the PIPA Office will be expanded and resourced, including on Kanton Atoll, and with effective collaboration maintained with MELAD's Wildlife Unit on Kiritimati Atoll (Line Islands). Agreed PIPA Services (e.g., tourism development, surveillance) will be contracted out to relevant agencies within and outside Kiribati under the direction of the PIPA Management Committee and managed by the PIPA Director.

SAP 1.4 PIPA Regulations, Permits, Licenses and Penalties

The PIPA Regulations (2008) provide explicit guidance to licenses, permits and penalties allowable under the PIPA. Importantly PIPA Regulations 6(5) specify "that 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 authorization of the Minister." 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.

The PIPA Regulations (2008) also provide for any approvals for permits or licenses issued by the Minister or designated authority shall be consistent with the provisions of the 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 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 together with any other specific agency requirement. Subject to approval (or not) by the

Principal Environment Officer, the PIPA Director has authorization to issue a research permit (see Appendix 4) 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-MC together with any other specific agency. 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. (Appendix 4).
- 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 (see Appendix 4). Furthermore, if bone or 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-MC, with final approval given by the Principal Environment Officer.

Licenses

- DWFN Fishing – Kiribati's Fisheries Ministry is responsible for all fishing licenses issued in the PIPA and the Phoenix Islands EEZ. License fees are subject to negotiation between the DWFN and GoK's Fisheries Ministry. All DWFN are conditioned to prevent fishing inside 12 nm of the Phoenix Islands and to prohibit purse seining within 60 nm of Kanton Atoll.
- Domestic Commercial Fishing Licenses – all Kiribati vessels larger than 7 meters must be licensed. Kiribati intends to maintain the status quo with respect to the fact that there are no domestic commercial fisheries in PIPA by attaching conditions to annual domestic permits prohibiting commercial fishing in the PIPA. Through the Kanton Island Sustainable Use plan, impacts by subsistence fishing and/or by vessels under the size limit for permits will be maintained within the goals of PIPA.

Additional special conditions may be specified on each issued permit or license at the discretion of the government.

Penalties

A schedule of penalties, consistent with the Environment Act 1999, as amended, and the PIPA Regulations (2008) will be developed by the PIPA Director for the PIPA-MC review and endorsement to the Principal Environment Officer and MELAD Minister for approval no later than 31 December 2010. Fines will not exceed \$100,000 AUD and/or terms of imprisonment not to exceed 5 years.

It is important to note that 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).

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 (2010-2014) 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. By December 2010 a Schedule of Penalties and Fees shall be developed and endorsed by the Principal Environment Officer consistent with the Environment Act 1999, as amended (2007) and the PIPA Regulations (2008). It is expected that the Penalty and Fee Schedules will be attached to this Plan and be implemented upon its approval to all new permits and licenses made. Until such time the existing fee regime and PIPA Regulations 2008 (in particular Sections 6(5), 10 and 11) shall continue to apply.

SAP 1.5 PIPA Zonation

The use of zonation is a core tool of PIPA Management, including a phased zonation approach to core protection measures as resources and capacity allow. In this Plan (2010-2014) two phases of PIPA zonation are proposed: the current or Phase 1 Zonation and an increase of 25% in the no take zone coverage once the PIPA Trust Fund income reaches an adequate capitalization level to compensate for any losses in DWFN license fees associated with such limitations.

Four levels of protection are incorporated into the Management Plan:

1. No-Take Zone – total ban of all extractive activities, and strict control of all activities to ensure no impact to marine and terrestrial species or habitats. This is the strictest level of protection and all activities must be explicitly assessed and permitted by PIPA-MC.
2. Restricted Use Zone – sustainable and 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, but is assessed to have non-significant impacts on species and habitats. Currently, this designation applies solely to Kanton Island, and all activities are managed under a Kanton Sustainable Use Plan (SAP 1.12). Marine and Terrestrial. Any permit or license requirements to be assessed and decided upon by the PIPA-MC.
3. Purse Seine Fisheries Exclusion Zone – commercial extraction by purse seines is prohibited, but licensed longline vessels are allowed. Based on Fisheries Regulation, this applies to a belt from 12-60 nm around an atoll. In PIPA, this designation applies solely to this area surrounding Kanton Island. Marine. Permits to be assessed and provided by the Ministry of Fisheries and Resource Development.
4. Ocean Management Zone – The remainder of PIPA excluding zones 1, 2 and 3 above. Fishing activities are allowed under permits as per the current rules and regulations governing fishing in Kiribati. All other activities in the sea or on/under the seafloor

must be assessed and permitted by the PIPA-MC. All activities in this zone should be commensurate with the objectives of PIPA.

5. Phoenix EEZ Ocean Buffer Zone- the area of Kiribati's Phoenix Islands EEZ outside of the outer boundary of PIPA is considered a buffer zone. Currently the only allowable uses are DWFN licenses for tuna fishing ((purse seine, longline, pole and line fisheries).

PIPA Phase 1 Zonation

The current PIPA Zonation (Phase 1) is given in Figure 4. The objective of Phase 1 Zonation is to secure the protection of the 8 PIPA islands, lagoons, reefs and nearshore habitats. This series of island-based no take zones amount to just over 15,000 sq km or 3.7% of the PIPA area. Current (Phase 1) PIPA Zonation is summarized below and in Table 3:

- a) **No-Take Zones** around 7 PIPA islands (3.1%, excluding Kanton). All activities in these areas must be non-extractive and all require individual permits obtained from PIPA.
 - a. Land area - 3 islands protected by Wildlife Sanctuary Ordinances and by PIPA legislation (Rawaki, McKean, Birnie)
 - b. Land area - 4 islands not designated as Sanctuaries, but access is restricted by prior legislation as well as by PIPA regulations (Enderbury, Orona, Nikumaroro, Manra). This includes any freshwater/brackish ponds, such as on Manra, Enderbury.
 - c. Marine area – the lagoons of Nikumaroro and Orona
 - d. Marine area – a 12 nm territorial zone strip around each island
- b) **Kanton Restricted Use Zone** (0.6%) – with an administrative population of about 30 people, extensive historical use, and good anchorage and airstrip. Designated for multiple use for purposes of PIPA management and sustainable development, and ongoing national presence;
 - a. Land area – a sustainable Kanton plan is envisaged, to be developed under SAP 1.2 in which all activities, people and uses are permitted individually.
 - b. Marine area – subsistence fishing - the lagoon and 12 nm territorial limits around Kanton designated for subsistence use by people resident on Kanton. Currently 30 people, but will expand with development and visitors. Permitting system required to manage impacts and limit numbers and fishery types. Bone fishing (catch and release) also to be allowed in the lagoon.
- c) **Purse Seine Fisheries Exclusion Zone** (9.1%) - Marine area, Kanton from 12 nm to 60 nm, exclusion for purse seiners but longliners allowed. All permits provided by MFMRD. No other fishing permits are to be given. No others permits to be given without consultation between MFMRD and PIPA-MC.
- d) **Ocean Management Zone** (87.2%). No current uses other than those licensed by MFMRD (purse seine, longline, pole and line fisheries) and no new activities can be initiated without permitting from MFMRD and PIPA- MC.

Further the Phoenix EEZ surrounding the PIPA boundary is considered an Ocean Buffer Zone- the area of Kiribati's Phoenix Islands EEZ outside of the outer boundary of PIPA is considered a buffer zone. Currently the only allowable uses are DWFN licenses for tuna fishing (purse seine, longline, pole and line fisheries) under MFMRD management.

Table 3. PIPA Phase 1 Zonation Summary

	Zone Type	No- Take Zone			Kanton Restricted Use Zone		Purse Seine Fisheries Exclusion Zone	Ocean Management Zone	Total PIPA
	Permitting authority	PIPA/MELAD	PIPA/MELAD	PIPA/MELAD	Multiple use				
	Protection Type	Wildlife Ordinance	Land/permit	12nm NTZ					
	Land/Marine	Land	Land	Marine	Land	Marine			
Islands – full protection	Rawaki	0.58							
	McKean	0.49							
	Birmie	0.48							
	Enderbury		5						
	Orona		6						
	Nikumaroro		4						
	Manra		5						
	Reef/shallow closure (7PIPA islands, 12nm)			12,714					
Kanton Island	Kanton (land)				9				
	Kanton subsistence use zone (12nm)					2,486			
	Kanton purse seine excl zone*								
Ocean	Ocean Management Zone							355,822	
	Totals	1.55	20	12,714	9	2,486	37,197	355,822	
	Total restricted areas (protection types)			12,735.55		2,495	37,197	355,822	
	% PIPA Total Area			3.12%		0.61	9.11	87.16	
	Total restricted areas (overall)						52,428	355,822	408,250
	% PIPA Total Area						12.84	87.16	100.00

*Less overlapping area of NTZ of Birnie & Enderbury

Phase 2 PIPA Zonation

Phase 2 PIPA Zonation has the core objective of increasing the no take zone coverage by an additional 25% of the total area of PIPA. Phase 2 Zonation will be implemented once the PIPA Trust fund is capitalized to a level sufficient to compensate GoK for any lost DWFN license fee income associated with the increase in the no take zone coverage. Agreed priorities in the increase of the no-take zone coverage are:

- 12 nautical mile no-take zone around Winslow and Carondelet Reefs.
- Increased no-take zone around 7 of the PIPA islands, excluding Kanton.
- Filling the gap between the two groupings of the PIPA islands with no-take zone.
- Maximizing underrepresented habitat in the no-take zone coverage, particularly seamounts.
- Ensure a more easily navigable and enforceable overall no-take zone boundary.

- Areas outside the above zones will still be allowable for fishing, consisting of DWFN or Kiribati boat access for tuna, as per the current rules and regulations governing fishing in Kiribati.

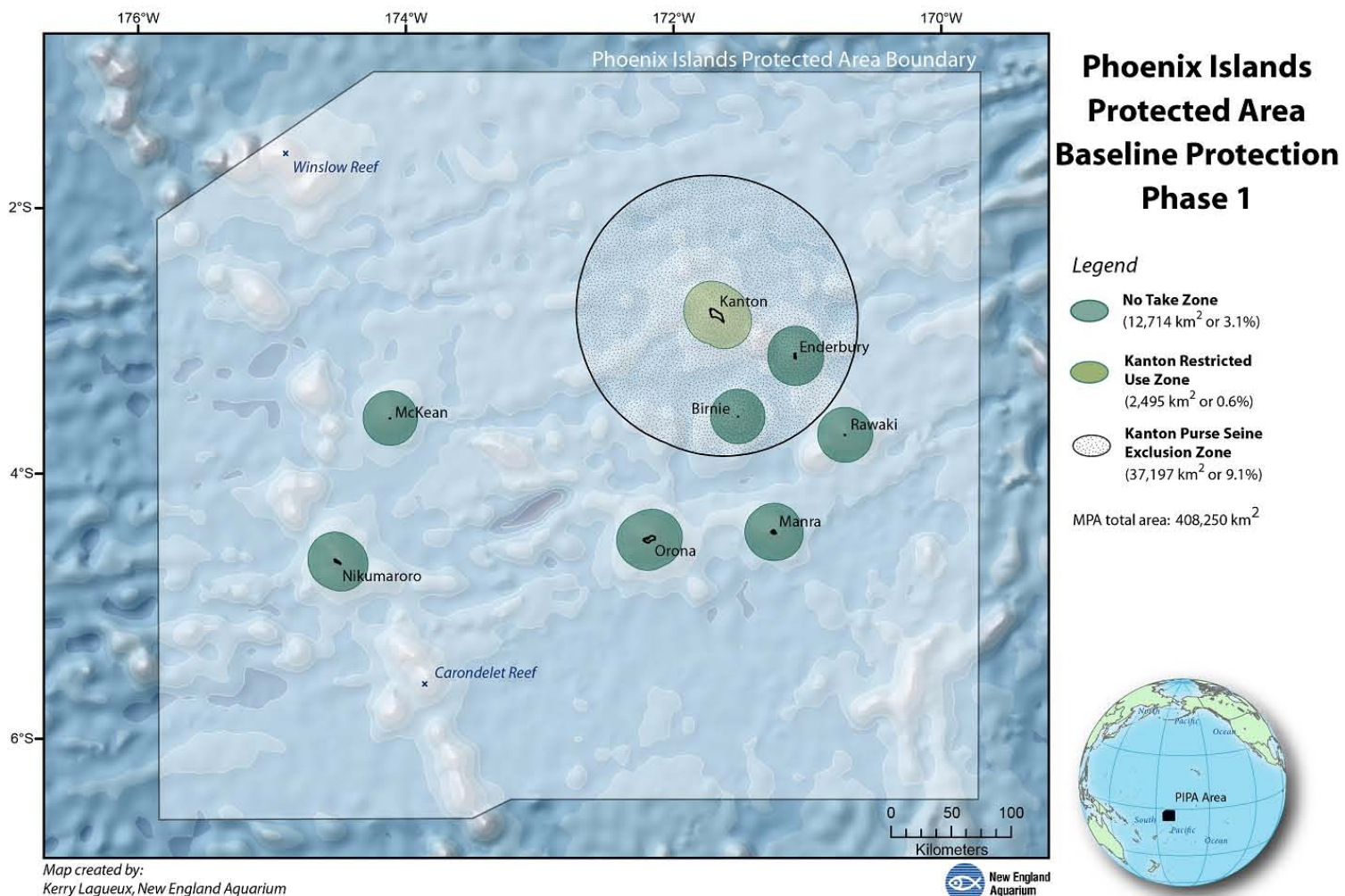
In addition it is expected that a more detailed zonation for Kanton Atoll will be completed during the Plan's implementation that is based on subsistence resource needs of the local caretaker community and possibly tourism needs.

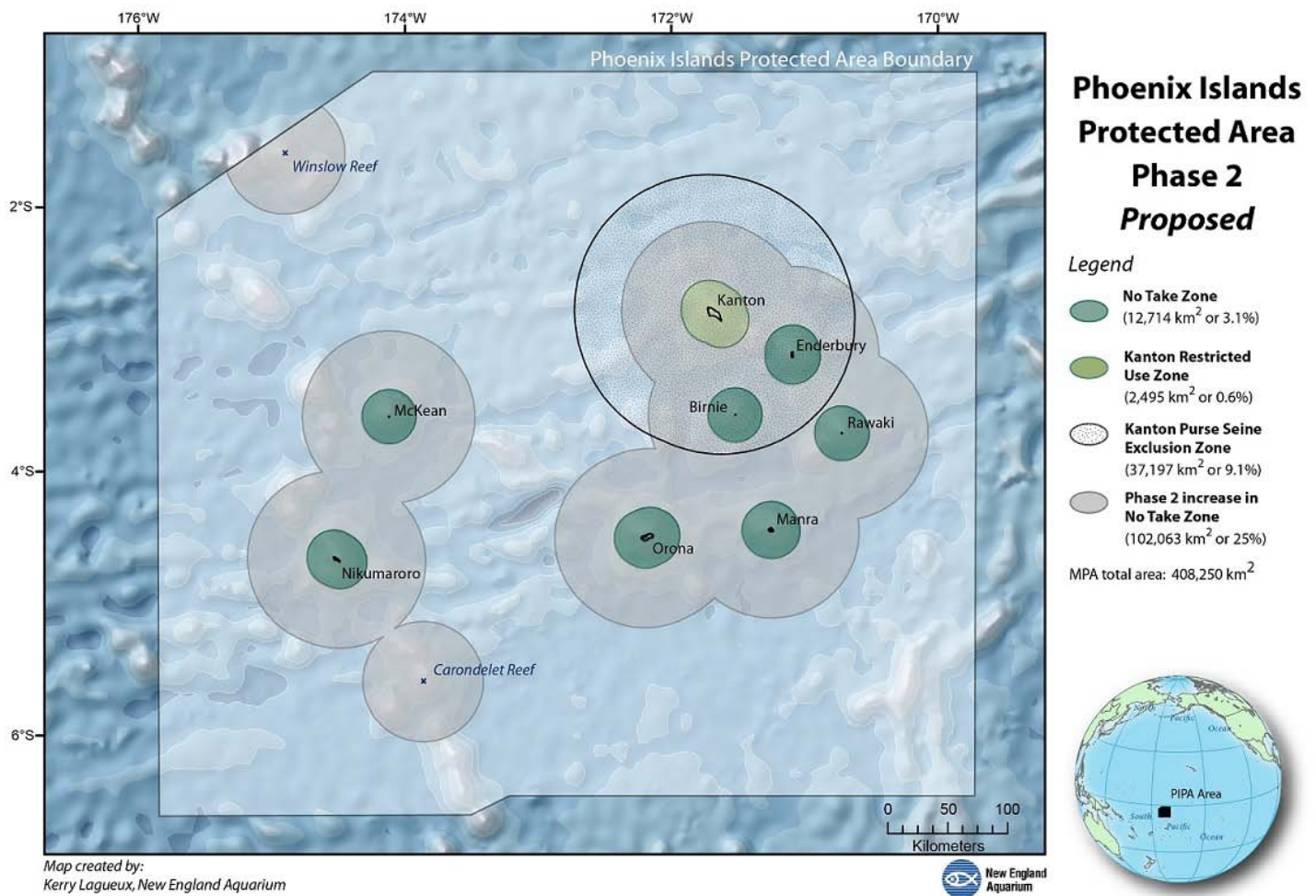
Exact boundaries for Phase 2 PIPA Zonation will be finalized, based on the above, during this Plan's implementation.

Both Phase 1 and Phase 2 PIPA Zonations are seen as a simple zonation system with the primary objective of prioritized protection of these systems. It is envisaged that a more sophisticated zonation system will take into account possible tourism development. This will be discussed and implemented in either Phase 2 or Phase 3 Zonation of the next PIPA Management Plan cycle.

SUMMARY: For this Plan (PIPA Management Plan (2010-2014) both PIPA Phase 1 and Phase 2 Zonation are expected to be successfully implemented by December 2014.

Figure 4. PIPA Zonation





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 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 PIPA 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 a particular area.
- Fisheries Observer Scheme – currently DWFN carry trained Kiribati Fisheries Observers (ca. 20% coverage). Under the third arrangement to the Nauru Agreement Kiribati has committed to requiring all DWFN boats to carry an observer (100% observer coverage) by January 2010.
- Aerial surveillance provided by New Zealand (NZ) and Australia Air Forces (Orions) coordinated with regular and special surveillance operations run 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. when there is a ship grounding.
- 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 current effort and resourcing of surveillance and enforcement is a significant achievement for Kiribati, as a small island developing state spread over a large area of ocean comprising three separate EEZ areas (relating to the Gilbert, Line and Phoenix Islands).

The key to a successful Fisheries-based surveillance and enforcement for PIPA requires the current foundation outlined above to be built upon noting:

- Vessels do not generally transit through the Phoenix Islands en route to anywhere else, rather it is a deliberate purposeful decision to be in the Phoenix Islands area.
- Additional requirements for surveillance and enforcement could be costed services for PIPA's management developed through the PIPA Trust Fund. This could include receiving vessel alerts by establishing a geo-fence based on the outer boundary of PIPA and on core zonation.
- 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.

- PIPA Training Module for Fisheries Observers – Kiribati Fisheries have indicated strong interest in incorporating a PIPA Training Module for their Observers and this is expected to be developed during 2010.
- IAS surveillance – each approved vessel to have an on-board system for detecting and eliminating IAS with trained observer to undertake inspection of vessel's biosecurity procedures and their effectiveness before approval is given to enter GoK/PIPA waters.

It is expected with additional PIPA resources for Fisheries Surveillance and Enforcement coupled with GoK's requirement for VMS, FFA geo-fencing capacity and 100% observer coverage that the surveillance of legally licensed vessels is manageable. The VMS licensed vessels are also expected to play a key role in reporting any unlicensed vessel in PIPA's waters, as indeed it is in their interest to do so. Illegal fishing remains a significant concern for the PIPA, other parts of Kiribati's EEZ and indeed other Pacific Island states.

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. The Wildlife Conservation Unit on Kiritimati Atoll has established procedures and trained staff for managing these issues, as well as for guiding and managing tourists and visitors. Linkages, capacity building and related management protocols for PIPA surveillance and enforcement tasks in this regard will be built with MELAD WCU.

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.

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.
- 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) and the PIPA Office (MELAD). The reporting format is as follows: individual name / vessel name / vessel number / time in GMT / suspicious activity (short description, GPS Co-ordinates).
- 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.
- Biosecurity measures at Kanton must follow the pending Biosecurity Act and its associated regulations. Note that guidelines are currently being developed to help with this process and enhancing PIPA biosecurity generally.

Enforcement must be closely linked with surveillance. Surveillance is integral in identifying possible illegal activities. Information from surveillance activities shall be conveyed to the enforcement section as soon as possible. GoK will continue to rely on existing measures for enforcement based on fisheries regulations and allowable permits and conditions therein. Further surveillance and enforcement measures will be reviewed in light of finalising the PIPA penalty schedule.

Capacity building for surveillance officers, observers and guides require development. The focus will be to combine the strengths of Fisheries observer programmes, Wildlife Conservation Unit (WCU) programmes and the particular requirements of remote-island guiding and tourism (e.g. the Galapagos Islands).

SUMMARY: For this Plan (PIPA Management Plan (2010-2014) GoK and its partners for PIPA will base surveillance and enforcement on existing measures (eg 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. A surveillance and enforcement programme design will be finalised in the same timeframe (December 2010) as the completion of a PIPA Penalty Schedule.

SAP 1.7 PIPA World Heritage Programme

GoK submitted its nomination dossier for PIPA to the United Nations Education, Scientific and Cultural Organisation (UNESCO) World Heritage Centre in January 2009 and it was listed for WH inscription in August 2010.

For the PIPA Management Plan 2010-2014 the objectives for the WHC are to secure a successful nomination of PIPA on the WHC list. The PIPA Management Plan embodies Kiribati's first commitment to fulfilling the obligations of the WHC. GoK and partners are cooperating with UNESCO, IUCN and highlighted the PIPA nomination and its importance with other Parties to the Convention. Importantly this Plan has been harmonized with the PIPA WHC nomination dossier.

It is important to note that 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 \$100,000AUD and a maximum of 5 years in prison for an offence relating to a listed Kiribati World Heritage site (Section 28).

SUMMARY: For this Plan (PIPA Management Plan (2010-2014)) GoK and its partners for PIPA will ensure as far as possible the successful listing of PIPA as a World Heritage Site.

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 has been designed and established by GoK in a core partnership with CI and NEAq under an agreed MOU and extension to support the design, establishment and ongoing operation of PIPA. CI and NEAq remain committed to this partnership for the period of this Plan and have signaled their intentions to continue supporting the PIPA in the longer term.

GoK, CI and NEAq will continue to foster partnership and resourcing for PIPA throughout this Plan. Partnerships and support for PIPA have been developed with the Governments of Australia, New Zealand, Save Your World Company, 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.

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).

A priority partnership for this Plan is with UNEP under the GEF Pacific Alliance for Sustainability. Under the PAS, the GEF have committed \$1 Million USD to PIPA focused on the implementation of this Plan. UNEP is the designated Implementing Agency.

Additional priority transboundary and international collaboration measures include:

- Agreement of a proposed "sister-site" agreement with USA's Papahānāmokuākea 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 will develop this initiative in 2009/10 as 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.
- Development of a Phoenix Ocean Arc based on cooperation with the USA's Pacific Marine National Monument programme with the aim of whole-archipelago management. As part of the Pacific Oceanscape, Kiribati announced its intention to foster a Phoenix Ocean Arc with PIPA as its first contribution and invited the USA (Howland and Baker Islands) to join Kiribati in this effort. Kiribati further announced its intention to develop a Line Islands Ocean Arc in a similar manner to the Phoenix Arc.

SUMMARY: For this Plan (PIPA Management Plan (2010-2014)) GoK will continue to foster its core partnership, transboundary and international programme for PIPA's implementation. Kiribati will assist the development of the Pacific Oceanscape and in particular the Pacific Ocean Arc initiative with the first arc under development being the Phoenix Ocean Arc.

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. This database will be added to as the PIPA work progresses and it is envisaged that most PIPA information sources will be made available online in an updated PIPA website.

Education, Outreach and the promotion of the values of PIPA and the work undertaken under Kiribati's leadership are an important priority for PIPA. A PIPA Education and Information Officer will be recruited by the MELAD PIPA Office under this Plan. Targets for this programme include:

- Review of Kiribati's Education Curriculum for opportunities to use PIPA information as part of core learning programmes in Kiribati.
- Design and implementation of a Kiribati PIPA Awareness programme, including domestic, regional and international media work for news of PIPA
- Update and expansion of PIPA website to include "Friends of PIPA", regularly news postings, archival information and resources.
- Review and participation in regional and international initiatives relevant to the promotion and to further understanding of PIPA and Kiribati.

SUMMARY: For this Plan (PIPA Management Plan (2010-2014)) the MELAD PIPA Office (under the guidance of the PIPA Management committee and in partnership with CI and NEAq) will develop as part of the PIPA Operational Work Plan an education and outreach initiative for PIPA. It will also maintain and build the information management systems already established (e.g., PIPA website, literature database).

SAP 1.10 PIPA Science and Research

PIPA's management practice is based on the best available scientific and technical knowledge and 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.

Science and research is seen as a cross cutting tool applicable to aspects of SAP 1, 2 and 3 and will be built into these Strategic Action Plans. Relevant activities will be reflected in the PIPA Annual Operational Work Plan rather than a standalone initiative to ensure that effort for science and research meets management needs. Operationally all science and research undertaken within PIPA will be operated on a permit basis (ref SAP1.4).

Fundamentally the Science and Research programme will focus on information needs for PIPA monitoring and evaluation and the information needed for the State of the PIPA report (SAP3). As far as possible inter disciplinary planning and multi targets for science and research will be undertaken due to the high expedition costs to PIPA.

SUMMARY: For this Plan (PIPA Management Plan (2010-2014)) science and research are seen as critical tools across many of the PIPA Strategic Action Programme initiatives. As part of the PIPA Annual Operational Work Plan, science and research will be designed and targeted to meet priority management needs.

SAP 1.11 PIPA Tourism

The development of environmentally-friendly, high-end tourism is a high priority for GoK. It is regarded as part of the sustainable management of the PIPA, contributing to Kiribati's development, employment and income generation.

Despite the high international profile of PIPA and related interest, tourism is very limited in the Phoenix Islands largely due to access issues. Tourism is limited to private yacht visits, tourism/research operated charters and the passage of occasional cruise ships. All visitors to the Phoenix Islands are required to clear customs and immigration on Kanton Atoll and must have a permit (ref SAP1.4) to visit. The PIPA Office vets all such permits under a standard operating system.

In 2009 GoK is expected to pass a new National Tourism Strategy, inclusive of a vision for the development of tourism in PIPA. Already significant domestic and offshore private sector interest in developing tourism associated with PIPA is evident. Measures being discussed and promoted include reopening the Kanton Airport, developing high-end land based tourism facilities on Kanton, possible joint venture initiatives (e.g., for boats) and tighter controls and improved facilities on boat-based tourism.

The PIPA Management Committee and PIPA Office fully recognize that if World Heritage listing is successful for PIPA in June 2010 that the profile and attractiveness for tourists to visit PIPA will increase significantly, if not exponentially. It is further recognized that much could be learnt from environmentally sound tourism development in other remote and large protected areas such as the Great Barrier Reef. It is considered that there is now a window of opportunity to sensibly plan and develop tourism in PIPA in a phased approach consistent with PIPA's Vision and the new Kiribati National Tourism Strategy. Resources are being secured to affect this. In the interim the existing visitor and tourism operator permit and fee system and associated monitoring will continue.

SUMMARY: For this Plan (PIPA Management Plan (2010-2014)) planning for tourism development in PIPA, consistent with PIPA's Vision and with the new Kiribati National Tourism Strategy is seen as a high priority for implementation. Given the potential World Heritage listing in 2010, the PIPA Office will work with the Kiribati Tourism Bureau to plan and develop a plan for tourism development, associated resources and partnerships required. This PIPA tourism plan will be reviewed by the PIPA Management Committee and implemented in a multi-agency approach as part of the overall PIPA Management Plan 2010-2014.

SAP 1.12 Kanton Atoll – Sustainable Resource Plan

Kanton Atoll is the only PIPA island currently inhabited. The population consists of a small government caretaker and administrative population of approximately 30 people. Government officers on Kanton have the responsibility for immigration, customs, fisheries and all government interests and roles in the Phoenix Islands. People on Kanton by necessity rely on both marine and terrestrial resources for subsistence needs.

In the baseline or Phase 1 Zonation Kanton has a 60 nm purse seine exclusion zone declared under the Fisheries Act. It also has a 12 nm no take zone except for harvest of resources for the Kanton community's subsistence needs.

It is recognized that Kanton is the gateway to the PIPA and being the only inhabited island needs special consideration in the PIPA Management Plan. The Kanton community, and proposed new government staff dedicated to PIPA work, are key in the development of PIPA and associated infrastructure including provision of adequate communication and access (e.g. wharf, air strip, anchorage). Development of land-based tourism is also seen as a priority to provide an income return to GoK and employment as part of PIPA's management.

With this array of actual and potential uses, Kanton Atoll is prioritized for a Sustainable Resource Use Plan on an island-wide basis out to the zonation of 12 nautical miles. In this Plan, all activities, and all individuals engaged in those activities should be explicitly named and defined, and annual permits given specifying their name, type of use, area of use and any limits required to keep activities and impacts within the objectives of PIPA Management Plan.

SUMMARY: For this Plan (PIPA Management Plan (2010-2014)) a Kanton Atoll Sustainable Resource Use Plan will be developed by December 2010 and implemented as resources and priorities allow as part of PIPA Core Management.

SAP 1. 13 PIPA Monitoring and Evaluation

Section 45(1)(f) and 48(4)(d)(for World Heritage areas) of the Environmental Act 1999, as amended, requires scientific and research studies to support protected areas. These provisions have been implemented through Section 6(2)(d) of the PIPA Regulations 2008, requiring that the PIPA Management Committee monitor the management of PIPA. Section 6(6) of the PIPA Regulations 2008 further requires that a monitoring programme be implemented in accordance with the Environment Act, PIPA Regulations and Management Plan.

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

There are two basic components for Monitoring and Evaluation of PIPA under this Plan:

- Scientific research and monitoring to detect trends in core and important PIPA values and issues (e.g., seabird populations, visitors numbers)
- Management Plan Implementation Monitoring - task and process monitoring and evaluation of the management system used by PIPA to ensure improvement in a cost effective and efficient manner, and to implement adaptive management (including addressing new issues and threats as they may arise).

Scientific Monitoring

Existing monitoring since the establishment of PIPA has included: water temperature loggers and monitoring of pre and post coral bleaching, assessment and follow up monitoring of key seabird and invasive species populations (as part of the atoll restoration programme), marine and terrestrial surveys and observations as part of boat visits to PIPA, and ongoing fisheries surveillance of Kiribati's EEZ (inclusive of PIPA). Information and effort cost from existing monitoring efforts are being factored into an integrated monitoring programme under this Plan. All records will be located within the MELAD PIPA Office.

Tables 3.1 and 3.2 below summarise monitoring effort and proposed parameters. A full Monitoring and Evaluation Plan will be developed and agreed by the PIPA Management Committee not later than June 2010 and requirements will be reflected in the PIPA Annual Operational Plan. At this time a PIPA Baseline report will be completed to provide a frame of reference for these monitoring programmes and a baseline for the preparation of the 2014 State of the PIPA Report (ref SAP 3). Parameter measurements conducted at a four yearly periodicity is considered a minimum. Many other parameters will be measured more frequently and also measured opportunistically as part of research, other surveys, and visitor programmes to the site.

Table 4. Marine Ecosystem Monitoring Summary

Indicator	Parameter	Periodicity	Location of Record
Coral Reef Health	Coral cover, benthic cover	Previous (2000,2002,2005) @ 4 years	PIPA Office, MELAD NEAq, CI
	Coral Diversity and Health (Disease, Bleaching)	Previous (2000,2002,2005) @ 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 eg 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) @ 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	Fisheries, SPC/FFA, PIPA Office, MELAD

		mandatory in Kiribati waters.	
Submerged Reefs/Seamounts	Baseline surveys Species diversity And abundance	2002 (partial survey down to 900 m) Effort will be based on resources available – deep sea mission planned for mid 2009.	NEAq, PIPA Office, MELAD

Table 4.1 Terrestrial Ecosystem Monitoring Summary

Indicator	Parameter	Periodicity	Location of Record
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	Pierce 2006, 2008 (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	Pierce 2006, 2008 (PIPA, MELAD, EcoOceania)
Invasive species	Species presence and abundance Eradication monitoring Monitoring key indicator species amongst seabirds (above)	Previous (2000,2002,2006, 2008) Future annually as part of atoll restoration until at least 2012 then every 3-5 years where possible using existing charters and biosecurity patrols.	Pierce 2006, 2008 (PIPA Office, MELAD, NEAq, EcoOceania, CI)

Actual field work will be contracted out and/or completed in collaboration with local and other agencies 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. For bird and invasive species surveys, the Government of Kiribati Wildlife Unit under MELAD is on Kiritimati Island. The WCU already participates in bird or wildlife surveys for PIPA via CEPF and NZAID funding and there are plans to extend this relationship. Regional organizations, such as the University of the South Pacific (with the Atoll Research Unit in Tarawa, and main campus in Suva, Fiji), are willing to assist in field work. PIPA partners NEAq and CI will continue to assist in expertise and resources for

surveys and monitoring. The PIPA office is seen as a catalyst or coordinating body, rather than a large organization doing all the research and monitoring surveys itself. Reports and the raw data will be housed within the PIPA office. Ultimately, it is the responsibility of the PIPA Director to ensure that all field data and survey reports are provided to the PIPA Management Committee (as part of any research permit).

Several terrestrial and marine surveys have been conducted over the past decades in the Phoenix Islands. Results for many of these surveys are available. 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 the objective is to standardize quantitative methods for each key species or group of organisms so that results can be comparable over time. This standardization process will draw heavily from existing methodology used by PIPA MC agencies eg Pacific Expeditions/Eco Oceania Ltd, Fisheries and consistent with those promoted by regional agencies eg SPC Fisheries.

Management Plan Implementation Monitoring

Based on the PIPA Annual Operational Work Plan the implementation of the 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.

Table 4.2. Management Plan Implementation Monitoring

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

SUMMARY: For this Plan (PIPA Management Plan (2010-2014)) a Monitoring and Evaluation programme design will be completed no later than June 2010 that addresses the twin needs of monitoring and evaluation as required under the PIPA Regulations (2008) and the need to provide targeted information to monitor and evaluate the implementation of this Plan. It is envisaged that this information collection and analysis will also be used as the primary data source for donor reporting requirements.

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 establishment under Kiribati law of the PIPA Conservation Trust Fund 2009. GoK passed legislation for the PIPA Trust Fund in May 2009 and the Board is expected to be constituted before the end of 2009. The PIPA Trust Board is expected to enter into a Conservation Contract with MELAD with income from the Trust Fund prioritized to cover PIPA management costs and any lost DWFN revenues associated with the future closure of areas of the PIPA EEZ to tuna fishing. The PIPA Trust Fund income is also required to cover the operational costs of the Trust.

Due to significant resourcing requirements associated with fully capitalizing the trust at a level that will immediately cover all associated costs of PIPA, a phased approach to building the endowment and covering the above mentioned costs has been agreed to by the founding members of the Trust: the Government of Kiribati, CI, and NEAq. For this Management Plan, the founding members are committed to initially capitalizing the Trust at \$13.5M USD before the end of 2014. This would allow the Trust to cover potential lost DWFN fees (exclusive of fishing pursued under the Pacific Islands Treaty which is in force until 2013) from closing additional 25% of the PIPA EEZ as a no take zone and would be implemented through the development of a Phase 2 Zonation plan. At this Trust Fund level, it is also anticipated that the Trust could support core PIPA management costs at approximately \$300,000 USD per annum.

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 secured or being fostered:

- CI/NEAq – ongoing support from the Global Conservation Fund of Conservation International (GCF) and other sources estimated at \$500,000/5 years
- Save Your World – corporate sponsorship targeted at surveillance and enforcement costs estimated at \$750,000/5 years
- UNEP GEF PAS PIPA project \$1M USD commitment
- CEPF – targeted at the atoll restoration and trust fund design, approximately \$500,000
- Government of Australia – support to PIPA World Heritage Nomination \$50,000AUD.
- Endowment contribution from CI's GCF (subject to matching finance) \$2.5 M USD.
- Endowment contribution from Kiribati Reserve Fund

Discussions are also underway with a range of potential donors and partners including the Governments of Australia, New Zealand, USA, European Union and others.

Against the framework of this PIPA Management Plan, a PIPA Business Plan will be developed led by the PIPA 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 will be developed 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 (2010-2014)) 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 2010 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 (2010-2014)) 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 2010, and a series of actions outlined. It is envisaged that significant fund raising effort will be used to package these ‘issues to results’ initiatives to secure additional project grant funding, resources, and expertise for their implementation in addition to core resources secured for the PIPA Core Management outlined above. 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 & Biosecurity

Target: by the end of 2014 a PIPA Atoll and Reef Islands Restoration programme will be implemented that ensures the continued recovery of native island biota, e.g seabirds through targeted invasive species eradications and follow up monitoring. Further a PIPA Biosecurity Programme will be designed with the primary aim of preventing any further introductions of alien species and the implementation will be integrated into the PIPA Core Management programme.

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 lead 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 frigatebirds (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.

Pests and indigenous biota were documented during a CI CEPF-funded terrestrial conservation survey of the PIPA in 2006. Pest findings are summarized in Table 5 below. Although some pests appear to have died out or been removed (e.g cats on Enderbury and Pacific rats on Orona), mammalian pests were still present on each of the 8 atolls in 2006 (Pierce et al 2006).

Table 5. Known pest mammal status in PIPA 2006

Island	Pest status 2006	Comments
Rawaki	Rabbits (targeted 2008)	Eradication success confirmed in 2009.
Birnie	Pacific rat	
McKean	Asian rat (targeted 2008)	Eradication success confirmed in 2009.
Enderbury	Pacific rat	Cats also previously reported but have died out
Orona	Cat	Pacific rat were once present but may have been eradicated early 2000s with brodifacoum used by coconut growers (status needs confirmation); no dogs, pigs in 2006
Nikumaroro	Pacific rat	No cats detected 2006
Manra	?	Not surveyed 2006; cats, rats and pigs previously reported.
Abariringa	Cat, <i>Rattus</i> spp.	Not surveyed 2006; possibly Pacific rat and larger rat species present

Prioritization of island pest eradications is based on a combination of several factors including:

- urgency - securing the most threatened seabird species from current threats,
- ecosystem values – extent and intactness of natural ecosystems
- potential for ecosystem recovery and recolonisation by indigenous species etc
- cost-effectiveness/feasibility
- defence/biosecurity

On this basis, two small islands (Rawaki and McKean) were rated urgent for pest eradication, because they supported a high diversity of seabird species (including threatened species) that were at risk from rabbits (Rawaki) and the recently invading Asian rat (McKean). Three other islands (Birnie, Enderbury and Orona) were also rated high in 2006 due to high ecosystem values and/or potential for ecosystem and species recovery). Manra was not able to be visited. Subsequently a NZAID-funded eradication programme attempted to eradicate pests on Rawaki (rabbits), McKean (Asian rats) and Birnie (Pacific rats) in 2008. The Birnie eradication was aborted, however, and confirmation of eradications on Rawaki and McKean was confirmed in late 2009.

Important habitats and seabird features of the island as well as an eradication timetable are displayed in the following tables 5 and 6.

Table 6. Key habitat and seabird features of the islands (Pierce et al 2006).

Island (pest)	Land area (ha)	Risk of pests invading ¹	Main vegetation types	Seabirds
1. Pest targeted 2008				
Rawaki (ex-rabbits?)	<50	Low	Grass, low scrub, recovering veg 2008	Most diverse in PIPA – 17-18 spp.
McKean (ex-Asian rat?)	c.20	Low	Grass, low scrub	Moderate diversity – declines since 20 th C
2. Other highest priority islands for restoration/pest removal				
Enderbury (Pacific rat)	500+	Moderate	Mainly grass and low scrub, trees, few coconuts	Diverse seabirds and recovering since cats died out; near Rawaki
Birnie (Pacific rat)	<50	Low	Grass, low scrub	Depleted birds, but close to Rawaki
Orona (cats)	c.600	High	Forest, scrub, coconut plantation	Good habitat for tree-nesters, also lizards, invertebrates
3. Priority islands for detailed ecological survey				
Manra (cats? rat spp.?)	c.500	Low	Forest, scrub, coconut plantation	Needs survey – few birds on fly-on counts
Kanton (cats, Pacific rats, large rat?)	c.900	High	Forest, scrub, coconut plantations	Depleted, but some tube-noses in SE (needs survey)
4.Others				
Nikumaroro (Pacific rats)	c.400	High	Forest, scrub, coconut plantation	Good habitat for tree-nesters, lizards etc

Note 1: this is simply a reflection of ease of landing (some of it illegally) and transporting pest mammals/ants etc ashore. Landing is difficult to achieve at the small islands. Coconut plantations may attract illegal landing at the three large southern islands and Kanton.

Table 7. Programme for eradication implementation by the biosecurity programme

Action/Task	Where	Timing	Who
Fisheries biosecurity	Source ports	Ongoing	PIPA/Fisheries
Port biosecurity	Tarawa	By 2010	Quarantine/Ag
Port biosecurity	Kiritimati	By 2010	Quarantine/Ag
Port biosecurity	Kanton	By 2011	?
Signage	7 islands	By 2012	PIPA
Coconut removal	Enderbury	By 2011	PIPA/delegate
Rodent surveillance and biota response	7 islands	Ongoing	PIPA/Ag/WCU?
Ant surveillance	7 islands	Every 5 years	PIPA/Ag/WCU?
Pest removal			
2008 success	Rawaki, McKean	2009-2010	PE/PIPA
Feasibility pest removal	Enderbury/Birnie	2009-2010	PIPA delegate/PE
Cat removal	Orona	By 2010	PE

2010 – 2014 Actions:

- *Rawaki – monitor outcome of rabbit removal which aims to secure and make more productive this site which is currently the key viable breeding location for a million or more birds of 17-18 seabird species in PIPA – includes the threatened or sensitive species Phoenix petrel, white-throated storm-petrel, blue noddy, three shearwater species and grey-backed tern and other terns, frigatebirds, etc.*
- *McKean – monitor outcome of Asian rat removal which aims to reverse the previously crashing populations of nearly all seabirds on this island and will see the rapid return and increased breeding success of all local tern and noddy species, including blue noddy, and the gradual increase in numbers of storm-petrels, Audubon's shearwater and other shearwaters. The more successful nesting of frigatebirds should follow due to the threatened birds becoming more common.*
- *Enderbury – eradicate Pacific rats from this large atoll which is one of the gems of the PIPA with a large, little- modified grassland-shrubland ecosystem, but with depleted birds. The removal of rats will see the vegetation recover and a return of all of the seabird species currently breeding on neighbouring Rawaki, including Phoenix petrel, storm-petrels, shearwaters, grey-backed terns and brown noddies and blue noddies (all visit, but with little or no successful breeding), lizard and invertebrate communities recover.*
- *Birnie – eradicate Pacific rats from this small atoll. It is also located near Rawaki and most of the seabird species present there will also colonise Birnie.*
- *PIPA Biosecurity programme - fully integrated and ongoing implementation of biosecurity measures with the primary aim of preventing IAS species introductions. This addresses particularly the key potential source areas, including Tarawa and Kiritimati, and many international ports in the Pacific region, and measures to minimise the transport of IAS on vessels. It also addresses pest surveillance and contingency measures in the PIPA, including for example no landing signage and removal of coconut trees (which may attract illegal landing) at Enderbury. See table above for biosecurity workplan.*

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

Target: by the end of 2014 PIPA's coral reefs and coastal habitats around 7 of the 8 PIPA Atoll and Reef Islands will have been effectively fully protected for the 5 year period through complete protection and their recovery from past unsustainable practices, e.g., shark finning, and meteorological impacts, e.g. coral bleaching will be better understood via work undertaken in the PIPA Monitoring and Evaluation programme. For Kanton Atoll, a Sustainable Resource Use plan will be developed and implemented inclusive of addressing coral reef and coastal management needs. Further climate change adaptation measures as recommended by SAP2.7 Climate Change programme will be assessed and implemented as resources allow.

Baseline:

The coral reefs of PIPA are among the least disturbed coral reefs in the world. 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 human activities that it can serve as a benchmark for understanding and potentially providing guidance for restoring other degraded hard coral ecosystems. The Phoenix Island reefs provide a model of what atoll reefs in this part of the Pacific Ocean are like with minimal human disturbance. The PIPA coral reefs offer a unique

opportunity for coral reef research and conservation which is important on an international scale.

Most coral species 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 and evolution of resistance to warming temperatures in corals. The widespread survival of corals in PIPA during the unprecedented warming in 2002-3 suggests this region may hold a key role in the long term adaptation and survival of coral species. Their ability to regenerate is much better than reefs in more populated areas due to the general lack of other environmental stresses on the reefs. This provides an important and likely unsurpassed 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. Fish diversity of seamounts is unknown but expected to have high levels of endemism. PIPA is not only outstanding in its reef fish biodiversity but is outstanding for the extraordinary abundance and size of fish, indicative of the high habitat quality and level of protection.

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 recently 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. PIPA may also host spawning grounds for the commercially important skipjack tuna. 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. Better understanding of this risk will be useful for managing impacts locally.

Currently, the only domestic reef fisheries are associated with subsistence fishing on Kanton Atoll in connection with the administrative settlement on Kanton. This level of harvests is minimal and will be analyzed further and managed through the Kanton Sustainable Resource Use Plan [cite]. There are no other domestic commercial fisheries on PIPA reef resources, although there are currently no license limitations on such fisheries in current domestic commercial licenses. License conditions prohibiting commercial fishing in the PIPA will be developed and added to commercial licenses as they are re-newed.

2010-2014 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.*
- *The Kanton Atoll Sustainable Livelihoods/Conservation and Sustainable Resource Use plan will be take 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.*
- *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 eg Climate Change, Endangered and Threatened Species programmes will be made.*
- *License conditions prohibiting domestic commercial fishing on the PIPA coral reefs will be developed and included in all domestic commercial fishing licenses.*

SAP 2.3 PIPA Endangered and Threatened Species

Target: by the end of 2014, effective PIPA Endangered and Threatened Species conservation will be fully integrated into the management of PIPA. 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 agreed in PIPA's interim management. The current IUCN Red List for Kiribati/PIPA is given in Appendix 6.

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

Table 8. 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.

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. As part of the development of the Kanton Atoll Sustainable Resource Use Plan the sustainability of this take will be assessed and measures taken accordingly.

Tuna – Under Kiribati's Fisheries law a 60 nautical mile purse seine exclusion zone applies around Kanton Atoll. Additionally all DWFN effort is banned in a 12 nautical mile zone around each of the Phoenix Islands atolls. Further under recent subregional arrangements (Nauru Agreement) Kiribati has agreed to ban the use of FADs for fishing for 3 months (July to September) for all DWFN and instituted a mandatory 100% observer coverage. These and related measures are now in force under the 3rd Arrangement under the Nauru Agreement and are being progressively phased in as DWFN licenses (largely annual except for USA purse seiners) expire and are re-issued.

Under this Plan the above measures for tuna conservation management will be extended through the proposed additional 25% no take zone coverage consistent with the capitalization of the PIPA Conservation Trust and compensation for lost revenues. This no-take zone will apply to all DWFN fleets except the USA fleet until the US Fisheries Multilateral Treaty (USFMT) expires in 2013.

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 – it is important to recognise that under the current or baseline PIPA Zonation all biota, terrestrial and marine, is fully protected in and out to 12 nautical miles for seven of the eight PIPA atolls/ reef islands. This is a key measure for terrestrial and coastal biota and immediate offshore areas due to the paucity of status information for most endangered and threatened species, including locally important and endemic species, in PIPA and indeed in Kiribati. For Kanton Atoll the conservation needs of endangered and threatened species will be a key consideration in the proposed Kanton Atoll Conservation and Sustainable Resource Use Plan.

One key gap identified in protected species coverage is the conservation needs of cetaceans, and several migrant seabirds travelling through the area (Pierce et al 2008)..

2010-2014 Actions:

- *Drawing from the current protected species measures, gaps identified in protected species coverage from the IUCN Red List for PIPA and species identified as locally important, e.g., native medicinal plants and endemics, a revised Protected Species List for PIPA will be developed and appended to this Plan by the end of 2010.*
- *This current Protected Species List and its further development outlined above will be used to inform the development PIPA Monitoring and Evaluation Plan to ensure its usefulness to assess information needs eg threat and species status trends for improved management of endangered and threatened species protected in PIPA.*
- *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.

SAP 2.4 PIPA Offshore Fisheries

Target: by the end of 2014 PIPA's Offshore (tuna) Fishing effort will be reduced by 25% on an area closure basis through increased no take zonation commensurate with compensation from the PIPA Conservatipon Trust, as set forth in the PIPA Conservation Contract. Impacts of this decision will be monitored and understood through monitoring of landing catch and fishing effort data. Currently this excludes fishing effort and revenues from the USFMT as the current treaty arrangements do not expire until end 2013. Research will be identified to further clarify tuna spawning hot spots and special management zones within the PIPA.

Baseline Situation:

Offshore fishing by DWFN is currently allowed under license except in the 60 nautical mile purse seine exclusion zone surrounding Kanton Atoll and in the 12 nautical mile no take zones surrounding the eight PIPA islands. PIPA is the world's first MPA to be used in part as a contribution to tuna conservation management and it's compatible with wider regional tuna and DWFN operational decisions that Kiribati is part of, e.g., 3rd Arrangement of the Parties to the Nauru Agreement. Additionally the basis of lost DWFN license fees is a principal component of the PIPA Conservation Trust construct. It is thus important over time to understand more fully the nature of the fishing currently allowed in PIPA, the impact of no-take or exclusion zones and the contribution of area-based closures to tuna conservation management.

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..

Apart from tuna fisheries (long line and purse seine), no other offshore fisheries are operating in PIPA waters. Measures to sustainably manage and protect other offshore resources of PIPA must be developed and integrated with programmes for fisheries development and

negotiations with DWFN. In particular, fishing methods that destroy habitat must be excluded. See SAP 2.6 on Seamounts.

2010-2014 Actions:

- *Early agreement by GoK and partners as part of the PIPA monitoring programme on which parameters are to be measured to understand fishing effort (catch landings, license revenues) and their relationship to PIPA management and no take fishing zonation. Implementation of this part of the monitoring programme is a high priority to inform the further development and use of the Conservation Contract with the PIPA Conservation Trust.*
- *Expanded tuna no-take zones will be identified and implemented through limitations on annual DWFN fleet licenses as necessary to comply with the terms of the Conservation Contract executed between the GoK and the PIPA Conservation Trust.*
- *Early discussions with the U.S. will be undertaken in advance of the re-negotiation of the U.S. MFT to assess the potential impacts of various PIPA zonation approaches on potential U.S. MFT revenues.*

SAP 2.5 PIPA Cultural and Historical Heritage

Target: by the end of 2014 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 Centre 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 artifacts, 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 Earhardt 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 20th 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 Earhardt 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.

2010-2014 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 TIGHAR investigation into the Earhardt disappearance under a PIPA permit and with TIGHAR 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 2014, increased understanding and conservation of PIPA seamount and deep sea habitat will be fostered through targeted research, a proposed seamount naming campaign and increased representative habitat protection in the Phase 2 Zonation no-take zones.

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 6,147 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).

Seamounts are known to have a high level of endemism and often contain high numbers of species that are new to science. Seamount ecosystems are of very special interest for conservation. Seamounts are particularly vulnerable to serious impact and local extinctions 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. PIPA is one of the very few large marine protected areas in the world that contains numerous seamounts, and the only one in the tropics. 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. It is probable that the seamounts of PIPA

have great importance for pelagic and commercially important fishery such as tuna and skipjack. With 25% of the world's seamounts already degraded, the 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.

2010-2014 Actions:

- *Maximise and incorporate protection of the Winslow and Carondelet Reef Seamount systems in PIPA Phase 2 Zonation.*
- *Adjustments to the PIPA zoning plan of the open ocean/buffer zone to specify protection levels for seamounts.*
- *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;*
 - *To explore potential links between deep and shallow habitats of the PIPA;*
 - *To use this biological data from the deep areas of the PIPA to inform the PIPA Management Planning process.*
 - *To document lessons learnt in the PIPA development as the first MMA model in the Pacific Islands region and the first for a Small Island Developing State (SID) that is inclusive of deep sea habitat.*

SAP 2.7 PIPA Climate Change

Target: by the end of 2014, best practice measures for climate change adaptation in tropical marine protected areas will be investigated and implemented, as resources allow for PIPA Further a PIPA Climate Change Research Programme will be designed and promoted 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 the PIPA. Kiribati and associated partners and donors have invested significantly into understanding and planning for climate change and this is reflected in the World Bank Kiribati Adaptation Programme 2nd phase (KAP2).

In 2002-3, the Phoenix Islands experienced a bleaching event as a result of increased sea surface temperatures that reached 21 Degree Heating Weeks and persisted for several 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 2004 and 2005. Fish populations were not noticeably affected. 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

The Phoenix Islands' example of mortality from a global event then recovery in the absence of significant local human impacts is significant as a reference case globally. 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. That is taken to be a positive sign and suggests both the resilience of the Phoenix Islands reefs to global climate change and the value of these remote island reefs as global benchmarks. Impacts of the warming in 2002-3 to other components of the Phoenix Islands flora and fauna were not studied, but their remoteness will make them as valuable examples as global benchmarks for these systems as well.

The effects of global climate change and global warming are expected to be experienced even in the remote areas such as PIPA. In fact PIPA is located in the part of the Central Pacific from which warm surface waters that drive the El Niño phenomenon originate. There have been various meteorological studies that suggested that the Phoenix Islands region is ideally placed for monitoring changes in weather patterns, especially ENSO activities in the central Pacific. The impacts of these changes could be amplified in the frail and unique ecosystems of the Phoenix Islands. Rising sea levels could submerge these atolls (though individual islands may be rising tectonically) and warming sea surface temperatures can result in coral bleaching.

The meteorological conditions also have a big influence on fish stocks in the region. Lehodey et al (1997) examined the ENSO in relationship to the western equatorial Pacific warm pool. During ENSO events this warm water pool shifts to the east and skipjack tuna populations also shift to the east extending significant catches 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.

Even though coral reefs of the Phoenix Islands are not isolated from the effects of global warming such as bleaching, their ability to regenerate appears much better than reefs in more populated areas in part because of lack of other threats and stresses to the reefs and possibly because they have adapted to the variations in water temperature caused by ENSO phenomena over a long period of time. This provides an important and likely unsurpassed opportunity to research and understand climate change impacts on coral reef systems in the virtual absence of other anthropogenic factors.

With respect to the direct PIPA management implications of climate change, there is an increasing body of literature and best practice advice for both marine and terrestrial protected area design, planning and implementation to best adapt to impacts of climate change. Drawing on this information a PIPA Climate Change Vulnerability Assessment was resourced with CI funding in 2009 and results will be incorporated into this Plan's implementation. It is noted that 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, and eradicate invasive species, on the basis that PIPA would then have the best chance to cope with impacts of climate change.

In summary, PIPA will be managed in accordance with best practice advice and information for adaptation to climate change in marine and island protected areas. 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. The atolls and associated reef systems are acknowledged as critical sites for ongoing study of:

- global climate change, ocean acidification and sea-level events in that they are located in a region less affected by other anthropogenic stresses;
- growth of reefs, evolution of reef systems, biological behavioural studies, recruitment processes in isolation, size classes and population dynamics of all marine organism groups and reef species diversity studies.

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.

2010-2014 Actions:

- *By March 2010 a PIPA Climate Change Scoping Study will be completed and based on this specific advice and input to this Plan (via annual Operational and Business Plans) on climate change issues will be made to ensure that PIPA management is consistent with best practice for climate change resilience and adaptation for protected areas.*
- *By March 2010 linkages between PIPA and the Kiribati National Adaptation Strategy under the National Adaptation Steering Committee in the Office of Te Beretitenti the Kiribati Adaptation Programme (KAP2) and the Climate Change Unit of the ECD will be established for reporting, policy linkages and implementation of this Plan and its Operational and Business Plans.*
- *By March 2011 assessment and development of PIPA as a 'natural climate change resource laboratory' will be made based on PIPA's attributes as being a large, remote, all marine habitat inclusive MPA that has limited other anthropogenic impacts and as such clearly articulates national, regional and global potential benefits. As part of this PIPA will explore and outline potential partnerships eg through its sister agreement with the North-west Hawaiian Marine National Monument (USA) and with international reef protection organizations, to better understand and capitalize on PIPA's apparent climate resilience (e.g., rapid recovery from bleaching events caused by increases in sea surface temperature). This is seen as a key investment strategy for PIPA to help with needed research, monitoring and management costs.*

SAP 3. State of PIPA Report 2014

Under the auspices of the MELAD Minister and the Principal Environment Officer the PIPA Office will produce, not later than 1 July 2014, 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 2010 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 2014 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 (2010-2014)) 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 not later than 1 July 2014.

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Appendix 1. Glossary of Terms.

Biodiversity - The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (CBD).

Biosecurity – Safeguard endemic flora and fauna from the introduction of harmful exotic species including GMOs and LMOs.

Closed - All entry or use is prohibited.

Commercial fishing – Any activity that results in the sale or trade for intended profit of fish, shellfish, algae, or corals.

Cultural heritage - The sum total of living built by a group of human beings and passed from generation to generation.

Distant water fishing nation (DWFN) - A nation who's fishing fleet fishes in the waters of another country.

Ecosystem - An interacting system of living and non-living parts such as sunlight, air, water, minerals and nutrients. Ecosystems can be small and short-lived, such as waterfilled tree holes or rotting logs on a forest floor, or large and long-lived, such as forests or lakes.

Endemic - Organisms whose distribution is restricted to a particular locality.

Exotic species - Non-native species. A species of plant, invertebrate, fish, amphibian, reptile or mammal whose natural zoogeographic range would not have included the waters of the central Pacific Ocean without passive or active introduction to such area through anthropogenic means.

Fishing - Fishing means: (1) the catching, taking, or harvesting of fish; (2) the attempted catching, taking, or harvesting of fish; (3) any other activity which can reasonably be expected to result in the catching, taking, or harvesting of fish; or (4) any operation at sea in support of, or in preparation for, any activity described in subparagraphs (1) through (3). Such term does not include any scientific research activity which is conducted by a scientific research vessel.

Genetic diversity - The variability in the genetic make up among individuals within a single species. In more technical terms, it is the genetic differences among populations of a single species and those among individuals within a population.

Habitat - The place or type of area in which an organism naturally occurs.

Harvest - The catching or taking of a marine organism by any means whatsoever, followed by a reduction of such organism to possession. Marine organisms that are caught but immediately returned to the water free, alive, and unharmed are not harvested. In addition, temporary possession of a marine animal for the purpose of measuring it to determine

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compliance with the minimum or maximum size requirements of this chapter shall not constitute harvesting such animal, provided that it is measured immediately after taking, and immediately returned to the water free, alive, and unharmed if undersize or oversize.

Mining operations – The term covers a broad range of activities including exploration for minerals and extraction of minerals.

MPA - A protected marine intertidal or subtidal area, within territorial waters, exclusive economic zones or in the high seas, set aside by law or other effective means, together with its overlying water and associated flora, fauna, historical and cultural features. It provides degrees of preservation and protection for important marine biodiversity and resources; a particular habitat (e.g. a mangrove or a reef) or species, or sub-population (e.g. spawners or juveniles) depending on the degree of use permitted. The use of MPAs (for scientific, educational, recreational, extractive and other purposes, including fishing) is strictly regulated and could be prohibited.

Natural heritage - Physical and biological resources available to a group of human beings that are passed from generation to generation.

Pelagic fish - Fish that are not closely associated with the ocean floor and are normally caught near the sea surface or in the water column.

Protected area - An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.

Species diversity - The variety of species, whether wild or domesticated, within a particular geographical area. A species is a group of organisms, which have evolved distinct inheritable features and occupy a unique geographic area. Species are usually unable to interbreed naturally with other species due to such factors as genetic divergence, different behavior and biological needs, and separate geographic location.

Subsistence fishing - Fishing for home consumption. No fish sales are allowed.

Sustained benefit - Positive contributions to the welfare of people that are continuous over time.

Tourist - A person traveling to and staying in places outside his or her usual environment for not more than one consecutive year for leisure, business, and other purposes.

Tourism - The activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business, and other purposes.

Vessel - Watercraft of any description, including, but not limited to, motorized and non-motorized watercraft, personal watercraft, airboats, and float planes while maneuvering on the water, capable of being used as a means of transportation in/on the waters of the Sanctuary. For purposes of this part, the terms “vessel,” “watercraft,” and “boat” have the same meaning.

Appendix 2. IUCN Red List of Endangered Species for Kiribati.

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

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

Appendix 2 (continued). IUCN Red List of Endangered Species for Kiribati.

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

Appendix 2. (continued). IUCN Red List of 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 fuscoquittatus</i></u>	Brown-marbled grouper	Near Threatened
<u><i>Epinephelus polyphemadion</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>Nesofregatta 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

Appendix 3. PIPA Regulations 2008.



REPUBLIC OF KIRIBATI

ENVIRONMENT ACT 1999

PHOENIX ISLANDS PROTECTED AREA REGULATIONS 2008

REPUBLIC OF KIRIBATI

ENVIRONMENT ACT 1999

PHOENIX ISLANDS PROTECTED AREA REGULATIONS 2008

In exercise of the powers conferred by sections 43(1) and 86(1) of the *Environment Act* 1999, 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 Regulations* 2008.

2. Objective

- (1) The objective of these Regulations is to prescribe a protected area for the terrestrial and marine resources of the Phoenix Islands, subject to such conditions as are included herein.
- (2) The further objective of these Regulations is to prescribe particular licences and permits for regulating certain activities in the Phoenix Islands Protected Area and to establish a schedule of penalties for all activities affecting the Phoenix Islands Protected Area.
- (3) The further objective of these Regulations is to implement the Cabinet decision of 20 March 2006, approving the nomination of the Phoenix Islands Protected Area to the World Heritage Committee established under the World Heritage Convention, for inclusion on the World Heritage list.

3. Commencement

These regulations come into operation on the day they are published at the Office of the Beretitenti.

4. Definitions

In these Regulations—

“Act” means the *Environment Act* 1999;

“IUCN” means the World Conservation Union;

“management plan” means a set of principles, practices, and procedures applicable to the terrestrial and marine resources of the Phoenix Islands, duly established pursuant to the terms of sections 45 and 47 of the Act;

“management committee” means that committee duly established by the Minister pursuant to the terms of section 46 of the Act;

“Minister” means the Minister for the time being responsible for the environment;

“Ministry” means the Ministry for the time being responsible for the environment;

“PIPA” means the Phoenix Islands Protected Area;

“protected area” within the context of the PIPA means a large, zoned, multi-use land and marine area managed for conservation and sustainable use under IUCN Category Ib - Wilderness Area;

“public authority” has the same meaning as in the Act.

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—

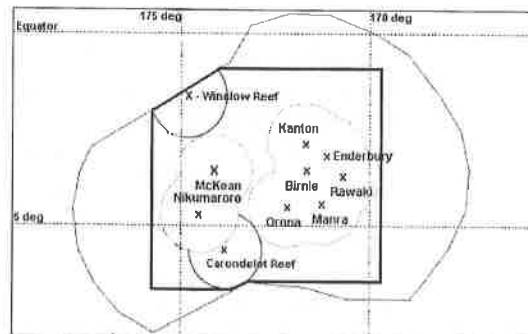
Birnie Island
 Enderbury Island
 Kanton (otherwise known as Abariringa or Canton) Island
 Manra (otherwise known as Sydney) Island
 McKean Island
 Nikumaroro (otherwise known as Gardner) Island
 Orona (otherwise known as Hull) Island and
 Rawaki (otherwise known as Phoenix) Island,

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

LONGITUDE	LATITUDE
185.757	-0.983
190.294	-0.983
190.294	-2.298
190.294	-4.846
190.294	-6.466
186.831	-6.471
186.490	-6.616
184.685	-6.616
184.134	-6.618
184.134	-2.091
190.292	-3.722

Map



- (2) This protected area shall be known as the Phoenix Islands Protected Area.

- (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 14th day of February, 2008.



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

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

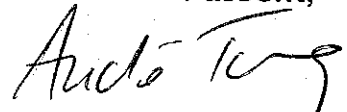


TAAM BIRIBO
Ag Secretary to the Cabinet

Appendix 4. Environment (Amendment) Act 2007.

REPUBLIC OF KIRIBATI
(No 1 of 2007)

I assent,



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 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.

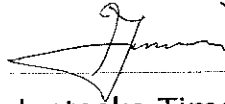
Part VII contains various miscellaneous provisions, covering such matters as: the maximum penalties for offences under the Act; the development of environment protocols; the establishment of environment committees; provisions for a special fund called the Environment Fund; appeals and the making of regulations.

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

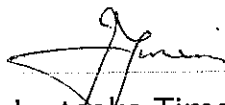
CERTIFICATE OF THE CLERK OF THE MANEABA NI MAUNGATABU

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 04th day
of September, 2007.



Ioataake Timeon
Clerk of the Maneaba ni Maungatabu

Appendix 5. PIPA Permit Requirements.

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, 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

☐	Research
☐	Tourism:
	☐ Bird watching
	☐ Diving
	☐ Amateur radio
	☐ Filming
	☐ Other (please explain):
☐	Specimen Collection
☐	Special Activity. Explain

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.