

Kiribati

Hot Spot Analysis

Report

Table of Contents

Kiribati Hot Spot Analysis Report.....	3
Introduction.....	3
1.Title: Bonriki and Buota Water Reserve areas.....	3
<i>A.Location: Tarawa, the Capital of Kiribati.....</i>	<i>3</i>
<i>B.Surface Area: Bonriki (0.67 km²) Buota (0.44 km²).....</i>	<i>3</i>
<i>C.Context of the site:.....</i>	<i>3</i>
<i>D.Nature of threats and extent of threats (Human and Natural).....</i>	<i>3</i>
<i>E.If heavy incidence of pollution, list type of source (point, non point, diffuse) and pre-identify the exact source:..</i>	<i>4</i>
Hot Spot 1: Bonriki and Buota Water Reserves, Tarawa Atoll	5
2.Title: Betio Islets, Tarawa.....	7
<i>F.Location: Tarawa, the Capital of Kiribati.....</i>	<i>7</i>
<i>G.Surface Area:</i>	<i>7</i>
<i>H.Context of the site:.....</i>	<i>7</i>
<i>I.Nature of threats and extent of threats (Human and Natural).....</i>	<i>7</i>
<i>J.If heavy incidence of pollution, list type of source (point, non point, diffuse) and pre-identify the exact source:..</i>	<i>7</i>
Hot Spot 2: Betio Islet, South Tarawa	8
3.Major Concerns and Issues.....	10
<i>K.Hot-Spot Area 1: Bonriki and Buota Water Reserves.....</i>	<i>10</i>
<i>L.Hots-Spot Area 2: Betio Islet.....</i>	<i>10</i>
<i>M.Aggregate table for Hot-Spots.....</i>	<i>11</i>
<i>N.Summary Table of Prioritized Hot-Spots Areas.....</i>	<i>12</i>

Kiribati Hot Spot Analysis Report

Introduction

This report represents the view of the National Water and Sanitation Coordination Committee. The National Water and Sanitation Coordinating Committee in its meeting held at the Public Utilities Board boardroom on Wednesday 11th April 2007, endorse the report for presentation.

It was agreed that due to time constraints, Kiribati will only look at Hot Spot Areas and not at sensitive areas, as required in the Hot Spot Area analysis report templates. The two hot spot areas identified are 1) the Bonriki and Buota water reserve areas and 2) the whole island of Betio.

1. Title: Bonriki and Buota Water Reserve areas.

A. Location: Tarawa, the Capital of Kiribati

B. Surface Area: Bonriki (0.67 km²) Buota (0.44 km²)

C. Context of the site:

a) Main human activities related to the site

The two areas are major water source for the South Tarawa Water Supply system. Other parts of the site are used for human habitation. The areas for human habitation are located away from the centre of the island, where the thickest part of the water lens is known to exist.

b) Natural conditions/phenomenon related to the site: These are natural unconfined aquifers.

D. Nature of threats and extent of threats (Human and Natural)

Encroachment is a continuing threat to water reserves, despite regulations, because of increasing population pressures and limited available land area for settlement in South Tarawa which contribute to the contamination of groundwater. The declaration of water reserves over privately-owned land causes considerable tensions and conflict between affected communities and the government because of the loss of local amenity when land owners are evicted from their land or when some traditional land uses are prohibited. This has led to costly ongoing disputes and vandalism of water infrastructure and groundwater monitoring boreholes. To reduce conflict, the Government pays affected landowners annual commercial rents for the land resumed as water reserves. Despite recommendations local landowners have not been involved in the on-going management of water reserves.

Bonriki is where the Kiribati international airport is located and also an area where 80% of the water source for the South Tarawa Water Supply system originates. Buota is an island located north of Bonriki and it is part of North Tarawa (rural area of Tarawa). Buota water reserve area supply the remaining 20% of the water source for the South Tarawa Water Supply system. Bonriki is inhabited

by 150 households spread at the edge of the island and some are living on the water reserve area. The majority of Bonriki households are concentrated at Bonriki village with the growing number of households now residing at the newly established village along the boundary of Bonriki water reserve area on the ocean side. Buota Island is inhabited by 170 households, with the majority of households resided at Buota village on the lagoon side of the island, with growing number of houses erected at the ocean side and along the boundary of the water reserve area. In recent years, Bonriki water reserve areas had been used by landowners for gardening vegetable such as garbage, cucumbers, and tomatoes. This poses threat to the underlying groundwater due to the use of organic and inorganic fertilizers. Another activity that has been ongoing is the aggregate mining, particularly at Bonriki. This activity can cause serious erosion and reduce the land area.

E. If heavy incidence of pollution, list type of source (point, non point, diffuse) and pre-identify the exact source:

There is a public cemetery located at the Bonriki water reserve and few other private graves located on individual lands.

There are also landowners doing commercial farming in the area. The use of organic and inorganic fertilizers could be another source of pollutants to the groundwater.

Value of Site	Local	National	Regional/Global
Environmental Significance	High	High	Low
Socio-economic significance	High	High	Low

Hot Spot 1: Bonriki and Buota Water Reserves, Tarawa Atoll

#	Name of Criteria	Weight (1-4)	Rating	Score =weightxrate
1	Size of affected area (as percentage of total national land area)	1	1- < 1% 2- 1 to 5 % 3- 5 to 10% 4- 10 to 50% 5- over 50%	2
2	Affected population (as percentage of national population)	4	1- < 1% 2- 1 to 5 % 3- 5 to 10% 4- 10 to 50% 5- over 50%	12
3	Extent to which the natural watershed or aquifer and any associated receiving coastal and marine waters support the livelihood of local communities (e.g. subsistence or commercial farming, forestry, mining, tourism, fisheries)	4	5- very important (>80%) 4- important (50-80%) 3- average importance (30-50%) 2- low importance (10-30%) 1- very low importance (<10%)	20
4	Extent to which the natural watershed or aquifer and any associated receiving coastal and marine waters support the national development (e.g. commercial farming, forestry, mining, tourism, fisheries)	2	5- very important (>80%) 4- important (50-80%) 3- average importance (30-50%) 2- low importance (10-30%) 1- very low importance (<10%)	10
5	Extent to which the site is a recognised government priority (refer	3	5 – yes, very high priority 4- yes, high priority	15

	to National Sustainable Development Strategy, or other strategic action plans <i>e.g.</i> NEAPs.		3- yes, medium priority 2 – yes, low priority 1 – no, not a priority	
6	Extent to which the site is of regional and/or global significance and priority (see WWF ecoregions, IUCN categories, UNESCO world heritage sites etc)	2	5 – yes, very high priority 4- yes, high priority 3- yes, medium priority 2 – yes, low priority 1 – no, not a priority	4
7	Degree of Degradation at the site (e.g. type of degradation)	3	5 – extremely high 4 – high 3 – average 2 – low 1 – very low	9
8	Extent of degradation on watershed/aquifer and any receiving coastal and marine resources and systems	2	5 – extremely high 4 – high 3 – average 2 – low 1 – very low	8
			TOTAL SCORE	80

2. Title: Betio Islets, Tarawa.

F. Location: Tarawa, the Capital of Kiribati

G. Surface Area:

H. Context of the site:

a) Main human activities related to the site:

This is the very highly dense population centre on South Tarawa with the population density of some 15000 person per square kilometers.

b) Natural conditions/phenomenon related to the site

There are natural unconfined aquifers on the islet, but these are now contaminated from human activities.

I. Nature of threats and extent of threats (Human and Natural)

The use of sea water as a flushing media for the toilet, the cultural habits of raising pigs within household's premises, burial of dead relatives on private lands, dumping of solid wastes in the hole in the ground and using the beach for defecations will continue to pollute the groundwater and the coastal areas on Betio.

J. If heavy incidence of pollution, list type of source (point, non point, diffuse) and pre-identify the exact source:

The groundwater and coastal area is heavily polluted with solid waste disposed in the hole in the ground. Leakages from the saltwater system is also polluting the groundwater, plus other human activities such raising pigs and chickens in the middle of the township area. The ultimate aim is to clean the area over a long-term period so that the groundwater resources can become potable.

Value of Site	Local	National	Regional/Global
Environmental Significance	High	High	Low
Socio-economic significance	High	High	Low

Hot Spot 2: Betio Islet, South Tarawa

#	<i>Name of Criteria</i>	<i>Weight (1-4)</i>	<i>Rating</i>	<i>Score =weightx rate</i>
1	Size of affected area (as percentage of total national land area)	1	1- < 1% 2- 1 to 5 % 3- 5 to 10% 4- 10 to 50% 5- over 50%	2
2	Affected population (as percentage of national population)	4	1- < 1% 2- 1 to 5 % 3- 5 to 10% 4- 10 to 50% 5- over 50%	12
3	Extent to which the natural watershed or aquifer and any associated receiving coastal and marine waters support the livelihood of local communities (<i>e.g.</i> subsistence or commercial farming, forestry, mining, tourism, fisheries)	3	5- very important (>80%) 4- important (50-80%) 3- average importance (30-50%) 2- low importance (10-30%) 1- very low importance (<10%)	15
4	Extent to which the natural watershed or aquifer and any associated receiving coastal and marine waters support the national development (<i>e.g.</i> commercial farming, forestry, mining, tourism, fisheries)	2	5- very important (>80%) 4- important (50-80%) 3- average importance (30-50%) 2- low importance (10-30%) 1- very low importance (<10%)	10
5	Extent to which the site is a	2	5 – yes, very high priority	10

	recognised government priority (refer to National Sustainable Development Strategy, or other strategic action plans <i>e.g.</i> NEAPs.		4- yes, high priority 3- yes, medium priority 2 – yes, low priority 1 – no, not a priority	
6	Extent to which the site is of regional and/or global significance and priority (see WWF ecoregions, IUCN categories, UNESCO world heritage sites etc)	2	5 – yes, very high priority 4- yes, high priority 3- yes, medium priority 2 – yes, low priority 1 – no, not a priority	4
7	Degree of Degradation at the site (e.g. type of degradation)	3	5 – extremely high 4 – high 3 – average 2 – low 1 – very low	9
8	Extent of degradation on watershed/aquifer and any receiving coastal and marine resources and systems	2	5 – extremely high 4 – high 3 – average 2 – low 1 – very low	8
			TOTAL SCORE	70

3. Major Concerns and Issues

K. Hot-Spot Area 1: Bonriki and Buota Water Reserves

Major Concerns	Issues
I. Freshwater shortage	1. Erosion of coast due to sand mining will reduce landmass with resulting freshwater shortages.
II. Pollution	2. Encroachments will pollute groundwater from human activities. 3. Over pumping of galleries will increase salinity of water
III. Habitat and Community Modification	4. The pumping of water cause coconut trees not bearing fruits.

L. Hots-Spot Area 2: Betio Islet

Major Concerns	Issues
I. Freshwater Shortage	1. Groundwater cannot be used due to high level of contamination from human activities.
II. Pollution	2. Household waste dumped anywhere underground or on the surface and in the sea.
III. Habitat and Community Modification	3. Lost of certain plant crops due to need to construct more buildings (urbanization).

M. Aggregate table for Hot-Spots

#	<i>Criteria Hot-spot</i>	<i>HS-1</i>	<i>HS-2</i>
1	Size of affected area (as percentage of total national land area)	2	2
2	Affected population (as percentage of national population)	12	12
3	Extent to which the natural watershed or aquifer and any associated receiving coastal and marine waters support the livelihood of local communities (<i>e.g.</i> subsistence or commercial farming, forestry, mining, tourism, fisheries)	20	15
4	Extent to which the natural watershed or aquifer and any associated receiving coastal and marine waters support the national development (<i>e.g.</i> commercial farming, forestry, mining, tourism, fisheries)	10	10
5	Extent to which the site is a recognised government priority (refer to National Sustainable Development Strategy, or other strategic action plans <i>e.g.</i> NEAPs.	15	10
6	Extent to which the site is of regional and/or global significance and priority (see WWF ecoregions, IUCN categories, UNESCO world heritage sites etc)	4	4
7	Degree of Degradation at the site (<i>e.g.</i> type of degradation)	9	9
8	Extent of degradation on watershed/aquifer and any receiving coastal and marine resources and systems	8	8
	Total Score	80	70

N. Summary Table of Prioritized Hot-Spots Areas

Country: Kiribati

Total Population: 92,533 (2005 Census)

Major Integrated Water Resources and Wastewater Management Issues

Selected Hot-Spots			
	Title	Score	Priority Issues
Hot-Spot 1	Bonriki and Buota Water Reserve Areas	80	1. Deterioration of water reserve due to encroachment will affect 43.5% of the total population
Hot-Sot 2	Betio Islet	70	1. The increasing population density on the islet will put more stress on the already crowded area in the country.