

Niue Island

Hot-Spot and Sensitive Areas

for

IWRM GEF Fully Size Regional Project.

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Identification Sheet(s).

Niue Island Hot-Spot and Sensitive Areas for IWRM GEF Fully Size Regional Project.

1. Introduction:

Niue Island undertake its process of identifying issues and needs for the island's Diagnostic Reports and identification of its Hot-Spot and Sensitive Areas by using National Stakeholder Consultation through its all sectors within the Government including Non Government Organization groups. This is more formalized by a 1 day, National Stakeholder Workshop. (attaché).

The Hot-Spot(s) and Sensitive Areas identify below is based on the agreement during the consultations and workshop that Niue to Address it issued under this IWRM as a National Project through integrated approaches. It is raised that there are two main critical issue currently the government of Niue is facing, Finance and Human Resource. This is weight basically because of limited human resource with in the government sectors, and these sectors also do have exiting projects that could be strengthen through assistant and provided by this proposed project for the government with sustainability in it's managing of the island's water resource..

The government put much effort on the island natural pristine environment of Niue. With less population on the island pollution and contamination is less or nil at all. However, as highlighted above with the island financial instability, natural surrounding resources are prone to be exploring harvest to be catering such financial instability.

The hot-spot and sensitive areas identify below is based on what the government sector see as a threat to the island economy, the environment, the tourism activities that it has been priorities nationally for the Island. However, as water resource found to be a cross cutting sector for all human and it economy, human health of the people and the visitors are the main concern in protection if any pollution occurs to the island water resource.

2. Hot-Spot #1: HS1/SA1 as Water Resources Over-Exploitation

A. Title: *Increase Cost in Pumping and Supplying Water for Domestic, Agriculture and Industrials Use.*

B. Location: *14 main villages in Niue (National)*

C. Context of the site:

- *Main human activity (ies) related to the site:*

Village developments such as small scale Vanilla, Noni, household piggeries farms, Government Fish Processing Plant, Fishing Boats and Large scale Noni farm. Tourism Activities and new developments of accommodations units require high demand of water. Household water use increase in demand for daily needs. Relocation of new residential and core government facilities to higher ground increase supplying of water using electrical pump to supply water

- *Natural conditions/phenomenon related to the site:*

Natural limestone or karstic geology with rapid Recharge or High infiltrates rates to the groundwater, where water quality will impose high risks of contaminates. Over pumping may disturb its natural process and also high risks in saltwater intrusion that will affect the quality of health of all consumers

D. Nature of threats and extent of threats (human and natural):

High Demand of water supply Increases thread of saltwater intrusion, increase fuel consumption on generating power to supply all water pumps (10% of the total electrical output.) Increase cost of maintenance with damage pumps. Increase cost in replacing new pumps. In sufficient skilled human resource for sustainable management of the water supply network

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

High water usage has high wastewater production of untreated or poor wastewater/sanitation treatments system in place.

Value of the Site:	Local	National	Regional/global
Environmental Significant	High	High	Average
Social-economic significant	High	High	Average

F. Hot Spot #1 Cost in Pumping Water for Domestic, Agriculture and Industrial Use

#	Name of the criteria	Weighting (1 – 4)	Rating
1	Cost of Pumping Water for Domestic, Agriculture and industrial Use.		
1	Size of affected area (as percentage of total national land area)	3	1- less than 1% 2- 1 to 5 % 3- 5 to 10% 4- 10 to 50% 5- over 50%
2	Affected population (as percentage of national population)	4	1- less than 1% 2- 1 to 5% 3- 5 to 10% 4- 10 to 50% 5- over 50%
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)	3	5- very important (>80%) 4- important (50-80%) 3- average importance (30-50%) 2- low importance (10-30%) 1- very low importance (<10%)

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)	3	5- very important (>80%) 4- important (50-80%) 3- average importance (30-50%) 2- low importance (10-30%) 1- very low importance (<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).	2	5 – yes, very high priority 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
7	Degree of Degradation at the site (<i>e.g.</i> type of degradation)	2	5 – extremely high 4 – high 3 – average 2 – low 1-Very low
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

3. SENSITIVE AREA #1 –

G. Title: Financial -Increase Cost in Supplying Water than Value of Production

H. Site: Whole Island water supply Network(National)

I. Context of the site:

- Main human activity (ies) related to the site:

Households, Agriculture, tourism activities, and government industrial

- Natural conditions/phenomenon related to the site:

Natural underground freshwater “Hard water” high in Calcium Carbonates

J. Nature of threats and extent of threats (human and natural):

Underground freshwater risks in contaminates through seepage of high nutrients in increases wastewater produced from high water demand (usage.)

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

Combination of Non-point and diffuse is the main possible cause of pollution to this sites wastewater and sanitation is the main thread of pollution.

1	Name of the criteria	Weightin g (1 – 4)	Rating
1	Increase cost in supplying water than the value of production.	4	1- less than 1% 2- 1 to 5% 3- 5 to 10% 4- 10 to 50% 5- over 50%
2	Affected population (as percentage of national population)	4	1- less than 1% 2- 1 to 5% 3- 5 to 10% 4- 10 to 50% 5- over 50%

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)	2	5- very important (>80%) 4- important (50-80%) 3- average importance (30-50%) 2- low importance (10-30%) 1- very low importance (<10%)
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%)
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.	3	5 – yes, very high priority 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
7	Biodiversity value of the site	1	5 – extremely high 4 – high 3 – average 2 – low

			1 – very low
8	Cultural and public health value of the site	4	5 – extremely high 4 – high 3 – average 2 – low 1 – very low
9	Extent of involvement of communities in local management	3	5 – extremely high 4 – high 3 – average 2 – low 1 – very low

4. MAJOR CONCERNS AND ISSUES

Major Concerns	Issues
I. Freshwater shortage	1. Reduction in stream flow or quality 2. Pollution of existing supplies 3. Salinization of groundwater
II. Pollution	4. Microbiological 5. Eutrophication (nutrient enrichment - creates harmful algal blooms) 6. Chemical 7. Suspended solids (sediment erosion) 8. Solid wastes 9. Mining wastes 10. Radionuclide
III. Habitat and community modification	12. Loss of ecosystems or ecotones Specify ecosystem type: 13. Modification of ecosystems or ecotones, including community structure and/or species composition

IV. Unsustainable exploitation of living resources (e.g. forestry, fishing, commercial agriculture)	14. Over-exploitation 15. Impact on biological and genetic diversity
V. Global change	16. Changes in hydrological cycle including droughts and cyclonic flooding and damage <i>i.e.</i> climate variability 17. Sea level change 18. Increased UV-b radiation as a result of ozone depletion 19. Changes in ocean CO2 source/sink function
VI. Other (please specify e.g. public health, economic productivity)	20. 21. 22.

5. HOT-SPOT # 2 HS2/SA2 Dispersed (Agricultural) Pollution Vulnerability of Water Resources

L. Title: Agriculture Land Use Practices

M. Context of the site:

- **Main human activity (ies) related to the site:**

Taro Cultivation, Vanilla, Noni and Agriculture farm at similar locations, and m irrigation vegetable using groundwater

- **Natural conditions/phenomenon related to the site:**

Natural underground freshwater catchments Area.

N. Nature of threats and extent of threats (human and natural):

Posed trends from increase used of uncontrolled, fertilizer; pesticides weed killers may leakage to the underground freshwater through seepage during heavy rain. High water usage during dry spell.

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

Diffuse point of pollution source, fro agro-chemical of applying on farming areas

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#	Name of the criteria	Weighting	Rating
2	Agricultural Land Use Practices	(1 – 4)	
1	Size of affected area (as percentage of total national land area)	4	1- less than 1% 2- 1 to 5 % 3- 5 to 10% 4- 10 to 50% 5- over 50%
2	Affected population (as percentage of national population)	4	1- less than 1% 2- 1 to 5% 3- 5 to 10% 4- 10 to 50% 5- over 50%
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)	4	5- very important (>80%) 4- important (50-80%) 3- average importance (30- 50%) 2- low importance (10-30%) 1- very low importance (<10%)
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%)
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.	2	5 – yes, very high priority 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
7	Degree of Degradation at the site (e.g. type of degradation)	2	5 – extremely high 4 – high 3 – average 2 – low 1-Very low
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

6. Sensitive Area #2

P. Title: Possible Contamination by Organic and In-organic of Underground Freshwater

Q. Context of the site:

- **Main human activity (ies) related to the site:**

Stationary Taro, Vanilla, Noni and agriculture farm at one location scattered around the island, and farm irrigation using groundwater

- **Natural conditions/phenomenon related to the site:**

Natural underground freshwater Catchments Area.

R. Nature of threats and extent of threats (human and natural):

Possible threads from increase used of uncontrolled, fertilizer; pesticides weed killers may leakage to the underground freshwater through seepage during heavy rain. High water usage during dry spell.

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

Diffuse point of pollution source

#2	Name of the criteria	Weighting	Rating
	Possible contamination of Organic and In-organic of Underground Freshwater	(1 – 4)	
1	Size of affected area (as percentage of total national land area)	4	1- less than 1% 2- 1 to 5% 3- 5 to 10% 4- 10 to 50% 5- over 50%
2	Affected population (as percentage of national population)	4	1- less than 1% 2- 1 to 5% 3- 5 to 10% 4- 10 to 50% 5- over 50%
3	Extent to which the natural watershed or aquifer and	4	5- very important (>80%)

	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)		4- important (50-80%) 3- average importance (30-50%) 2- low importance (10-30%) 1- very low importance (<10%)
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)	3	5- very important (>80%) 4- important (50-80%) 3- average importance (30-50%) 2- low importance (10-30%) 1- very low importance (<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).	3	5 – yes, very high priority 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
7	Biodiversity value of the site	3	5 – extremely high 4 – high 3 – average

			2 – low 1 – very low
8	Cultural and public health value of the site	3	5 – extremely high 4 – high 3 – average 2 – low 1 – very low 9 Extent of involvement of communities in local management 2 5 – extremely high
9	Extent of involvement of communities in local management	3	5 – extremely high 4 – high 3 – average 2 – low 1 – very low

7. MAJOR CONCERNS AND ISSUES

Major Concerns	Issues
I. Freshwater shortage	1. Reduction in stream flow or quality 2. Pollution of existing supplies 3. Salinization of groundwater
II. Pollution	4. Microbiological 5. Eutrophication (nutrient enrichment - creates harmful algal blooms) 6. Chemical 7. Suspended solids (sediment erosion) 8. Solid wastes

	<p>9. Mining wastes</p> <p>10. Radionuclide</p>
III. Habitat and community modification	<p>12. Loss of ecosystems or ecotones Specify ecosystem type:</p> <p>13. Modification of ecosystems or ecotones, including community structure and/or species composition</p>
IV. Unsustainable exploitation of living resources (e.g. forestry, fishing, commercial agriculture)	<p>14. Over-exploitation</p> <p>15. Impact on biological and genetic diversity</p>
V. Global change	<p>16. Changes in hydrological cycle including droughts and cyclonic flooding and damage <i>i.e.</i> climate variability</p> <p>17. Sea level change</p> <p>18. Increased UV-b radiation as a result of ozone depletion</p> <p>19. Changes in ocean CO2 source/sink function</p>
VI. Other (please specify e.g. public health, economic productivity)	<p>20.</p> <p>21.</p> <p>22.</p>

8. Hot-spot #3 HS3/SA3 Point Pollution (wastewater, fuel oils) Vulnerability of Water Resources

T. Title: Underground Freshwater Investigation (Alofi Well Field Catchments)

U. Context of the site:

- **Main human activity (ies) related to the site:**

Government Infrustructures development, and location of the National hospital, Power Station, Fuel and Oil Storage facility, Schools, landfill and wastewater septic sludge disposal site, main island main port

- **Natural conditions/phenomenon related to the site:**

Natural Catchments and watershed, unknown

V. Nature of threats and extent of threats (human and natural):

Contamination of poor disposal method, storage method, seepage to coastal areas, Unknown Natural flow regime of the underground freshwater. Saltwater intrusion when over pumped.

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

High risks of combination, wastewater, sanitation, oil spill, hospital wastewater .All possible high Risk thread as the main development area of the Island.

<i>Hot-Spot</i>			
#	<i>Name of the criteria</i>	<i>Weighting</i>	<i>Rating</i>
3	Underground Freshwater Investigation (well Field(s) Catchments)	(1 – 4)	
1	Size of affected area (as percentage of total national land area)	4	1- less than 1% 2- 1 to 5 % 3- 5 to 10% 4- 10 to 50% 5- over 50%
2	Affected population (as percentage of national population)	4	1- less than 1% 2- 1 to 5% 3- 5 to 10% 4- 10 to 50%

			5- over 50%
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)	2	5- very important (>80%) 4- important (50-80%) 3- average importance (30-50%) 2- low importance (10-30%) 1- very low importance (<10%)
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%)
5	Extent to which the site is a recognised government priority (refer to National Sustainable Development Strategy, or other strategic action plans e.g. NEAPs).	4	5 – yes, very high priority 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
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
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

9. Sensitive Area #3 – Economy Unstable if Pollute the Well field.

#	Name of the criteria	Weighting	Rating
3	Economy Unstable when Pollution Occurs on Well Field	(1 – 4)	
1	Size of affected area (as percentage of total national land area)	4	1- less than 1% 2- 1 to 5% 3- 5 to 10% 4- 10 to 50% 5- over 50%
2	Affected population (as percentage of national population)	4	1- less than 1% 2- 1 to 5% 3- 5 to 10% 4- 10 to 50% 5- over 50%
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)	2	5- very important (>80%) 4- important (50-80%) 3- average importance (30-50%) 2- low importance (10-30%) 1- very low importance(<10%)

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%)
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.	4	5 – yes, very high priority 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
7	Biodiversity value of the site	3	5 – extremely high 4 – high 3 – average 2 – low 1 – very low
8	Cultural and public health value of the site	4	5 – extremely high 4 – high 3 – average 2 – low 1 – very low 9 Extent of involvement of communities in local

			management 2.5 – extremely high
9	Extent of involvement of communities in local management	2	5 – extremely high 4 – high 3 – average 2 – low 1 – very low

10. MAJOR CONCERNS AND ISSUES

Major Concerns	Issues
I. Freshwater shortage	1. Reduction in stream flow or quality 2. Pollution of existing supplies 3. Salinization of groundwater
II. Pollution	4. Microbiological 5. Eutrophication (nutrient enrichment - creates harmful algal blooms) 6. Chemical 7. Suspended solids (sediment erosion) 8. Solid wastes 9. Mining wastes 10. Radionuclide
III. Habitat and community modification	12. Loss of ecosystems or ecotones Specify ecosystem type: 13. Modification of ecosystems or ecotones, including community structure and/or species composition
IV. Unsustainable exploitation of living resources (e.g. forestry, fishing, commercial agriculture)	14. Over-exploitation 15. Impact on biological and genetic diversity

V. Global change	16. Changes in hydrological cycle including droughts and cyclonic flooding and damage <i>i.e.</i> climate variability 17. Sea level change 18. Increased UV-b radiation as a result of ozone depletion 19. Changes in ocean CO2 source/sink function
VI. Other (please specify <i>e.g.</i> public health, economic productivity)	20. 21. 22.

11. AGGREGATED SCORING TABLE FOR HOT-SPOT AREAS- Niue Island

	<i>criteria \ hot-spot</i>	1	2	3
1	Size of affected area (as percentage of total national land area)	12	20	20
2	Affected population (as percentage of national population) ,	20	20	20
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)	12	20	8
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)	20	10	8
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.	10	8	20
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.).	6	6	6
7	Degree of Degradation at the site (<i>e.g.</i> type of degradation)	4	6	12
8	Extent of degradation on watershed/aquifer and any receiving coastal and marine resources and systems	6	6	8
	TOTAL SCORE (<i>actual score with multiplications for weighting</i>)	72	76	82
	NORMALISED SCORE (<i>i.e. as a percentage of a possible top score of 100</i>)	72%	76%	82%
	Key issues relevant to the hotspots: 1- Demand of Water for economic Developments/Human resource 2-Vulnerability of Underground freshwater to Land base Activities			

3- Protection of Catchments Fields

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12. Aggregated Scoring Table for Sensitive Areas

	<i>Criteria \ sensitive area</i>	1	2	3
1	Size of area at risk	20	8	20
2	Population at risk (please define the population)	20	8	20
3	Extent to which the natural watershed and any associated coastal and marine resources support the livelihood of local communities (for instance, in the case of tourism, fisheries, etc)	6	20	8
4	Extent to which the natural watershed, and any associated coastal and marine resources support the national development (for instance, in the case of tourism, fisheries, etc)	8	12	8
5	Extent to which the site is a government priority (refer to NEAP or other strategic environmental action programme)	15	15	16
6	Extent to which the site is of regional and/or global significance and priority (see WWF ecoregions, IUCN categories, etc.).	4	4	6
7	Biodiversity value of the site	2	15	15
8	Cultural value of the site	20	12	20
9	Extent of involvement of communities in local management	15	12	
	TOTAL SCORE (actual score with multiplications for weighting)	90	106	119
	NORMALISED SCORE (i.e. as a percentage of a possible top score of 125)	72%	85%	95%
	NORMALISED SCORE (i.e. as a percentage of a possible top score of 125)			

	Key issues relevant to the sensitive area	1- Human Health 2- Protection Warrant/Water Quality 3- Cost to National Economy if Pollute/ Contaminate
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13. Summary Table of Prioritized Hot-Spots and Sensitive Areas

X. *Country:* Niue Island

Y. *Total population:* 1679 (2006 Census)

Z. *Major Integrated Water Resource and Wastewater Management Issues:*

Very, very limited understanding of the hydrology and the underground freshwater lens resource, limited protection policies in place and limited skill human resource implementing such water resource activities. Co-ordination between stakeholder is an issue basicall because of the financial difficulties, as the island is heavy rely on Aid for development.

Niue island is very small in population compare to land mass where there is current no sign of major pollution or contamination to its main source of freshwater. However, with proposed economic development in Noni, vanilla farming, fisheries and tourism, wher impact of such scale activities in the future will cause threatening or server to the island water resource. This will also pose great threat to the whole island human health, future generation and the economy.

AA. *List Hot-Spots and Sensitive Areas from 1-3 (highest scores first)*

Selected Hot-Spots			
	Title	Score	Priority Issue
Hot-Spot 1	Underground Freshwater Investigation (Alofi Well Field Catchments)	82	Policies and full geological investigation of the Site and Monitoring
Hot-Spot 2	Cost in Pumping Water for Domestic, Agriculture and Industrial Use	78	User Pay Policies, Demand Management and Leakage Control
Hot-Spot 3	Agriculture Land Use Practices	77	Awareness and Education, Polices of Catchments Protection
Selected Sensitive Areas			
	title	Score	Priority Issue
Sensitive Area 1	Economy Unstable if Pollute the Well field	95%	Impact to Human Health/tourism sector and the Whole Water Influstructures and the Environment
Sensitive	Financial -Increase Cost in Supplying	85%	Quality and quantity of

Area 2	Water than Value of Production		water may affect all sector of economic development
Sensitive Area 3	Possible Contamination by Organic and In-organic of Underground Freshwater	72%	Impact on the water resource and the environment