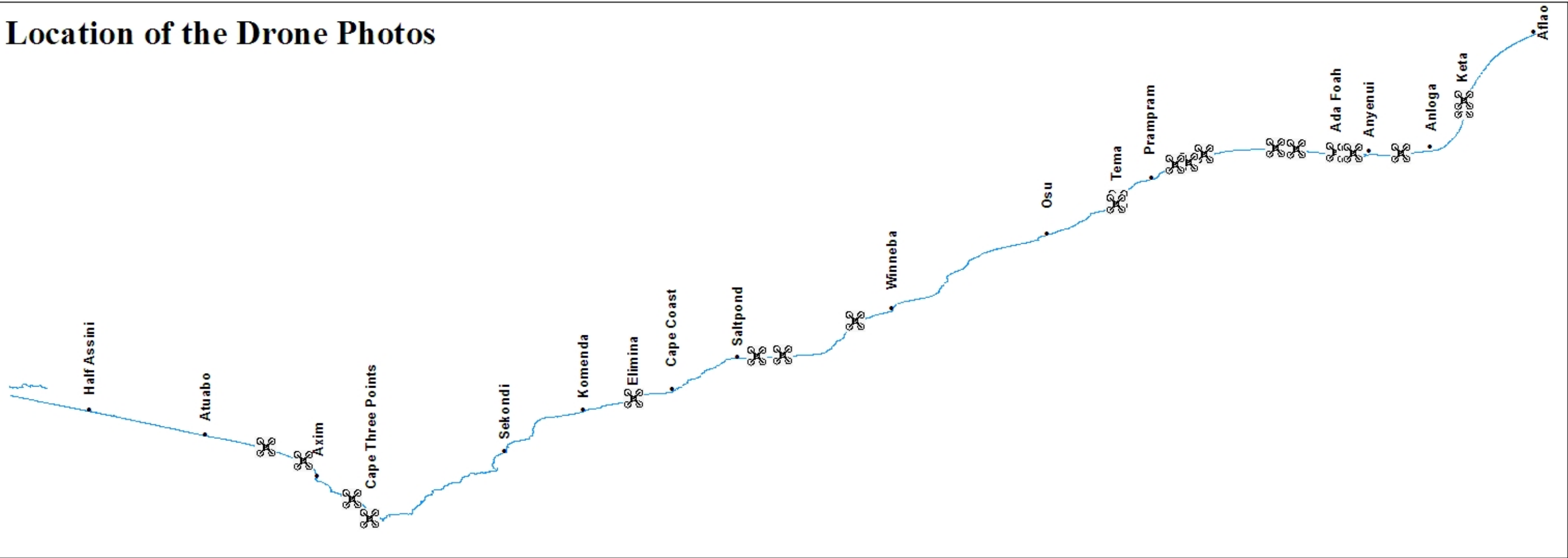
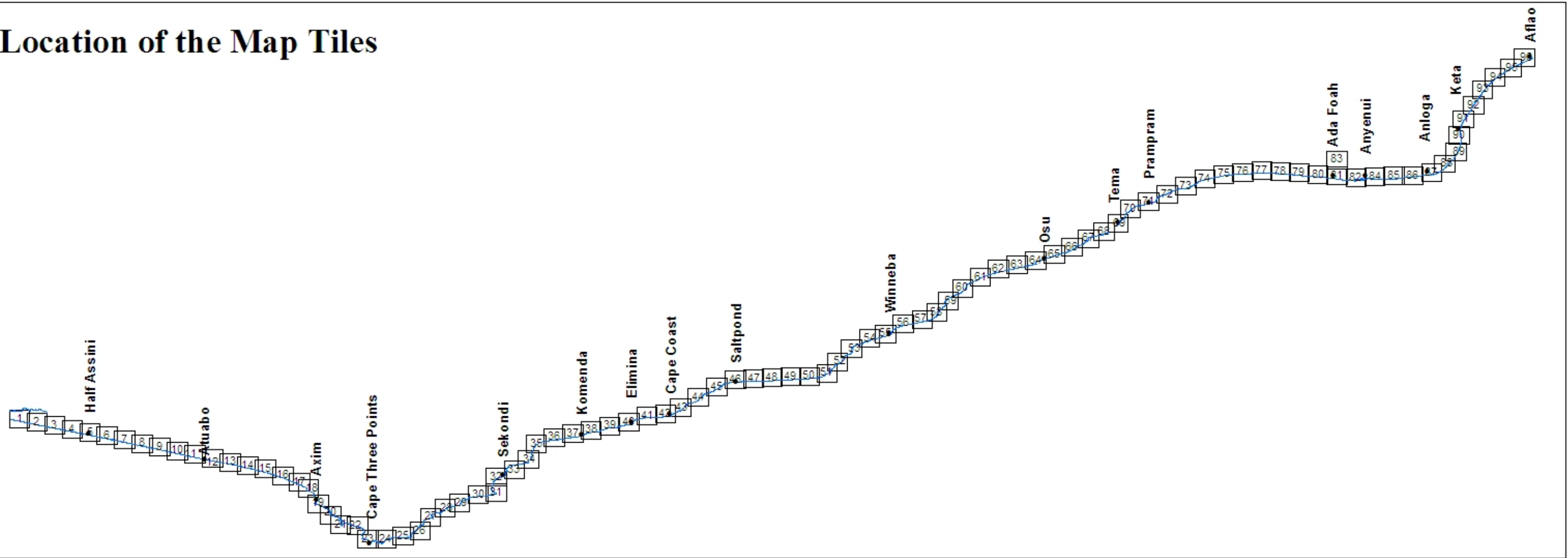


Location of the Drone Photos



Location of the Map Tiles

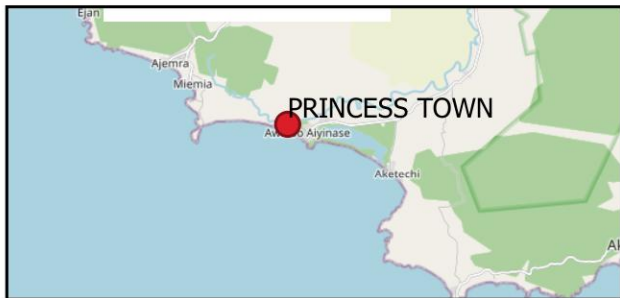




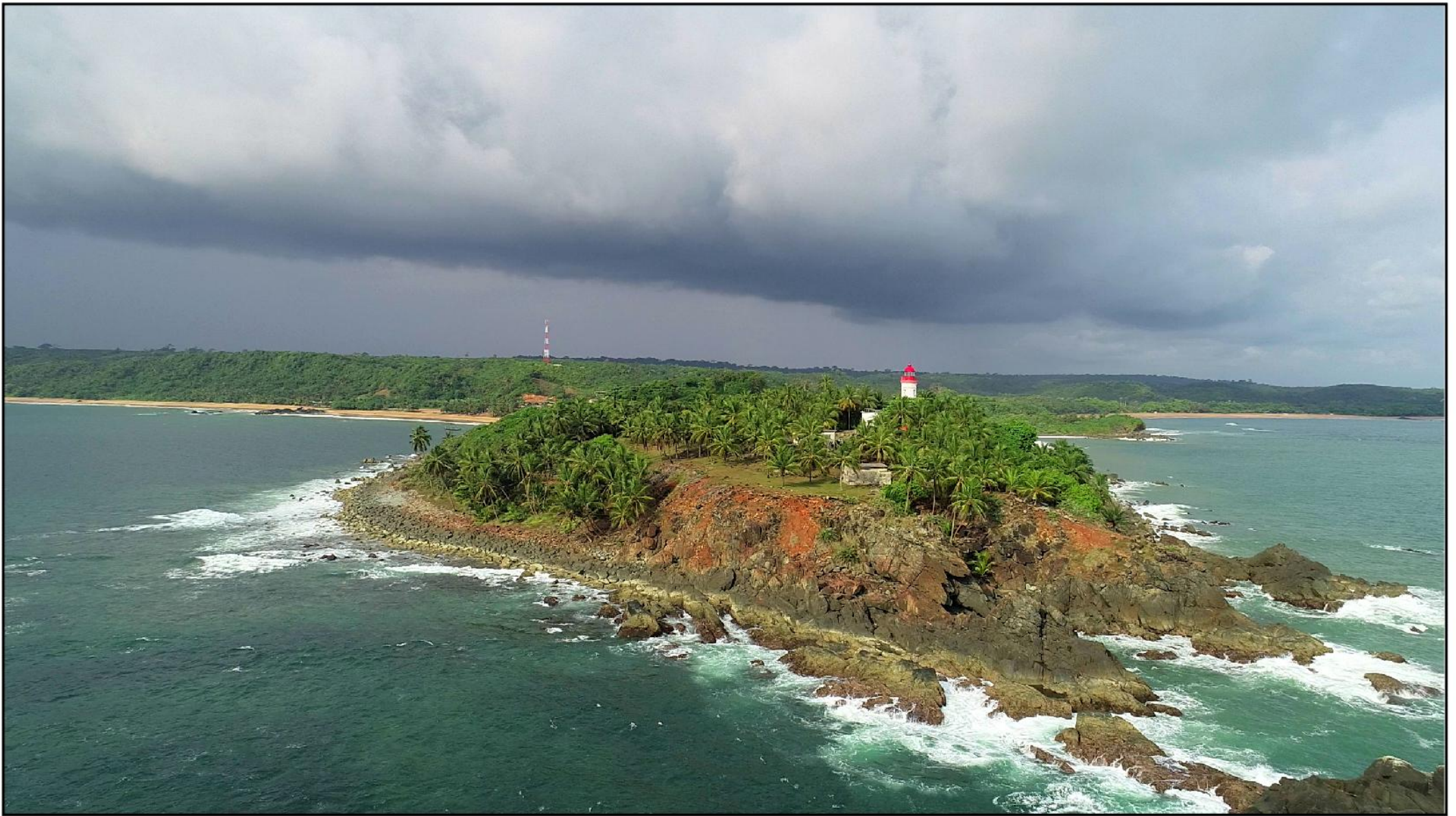
Location: Amanzure Estuary
Western Region
Map 15



**Location: Asanta,
Western Region
Map 17,18**



**Location: Princess Town,
Western Region
Map 22**



**Location: Cape Three Points,
Western Region
Map 23**



Location: Elmina Castle and Harbour Elmina, Central Region Map 40



Location: Amisano,
Central Region
Map 47



Location: Narkwa Lagoon,
Central Region
Map 48,49



**Location: Solent Villa Resort,
Abrekum, Central Region
Map 53**



Location: Tema Harbour
Tema, Greater Accra Region
Map 68,69



Location: Tema Canoe Basin,
Greater Accra Region
Map 69



**Location: Djange Estuary,
Greater Accra
Map 72**



**Location: Ningo Salt Pans,
Greater Accra Region
Map 73**



**Location: Mangotsona,
Greater Accra Region
Map 74**



Location: Kablevu,
Greater Accra Region
Map 7B



**Location: Totope,
Greater Accra Region
Map 79**



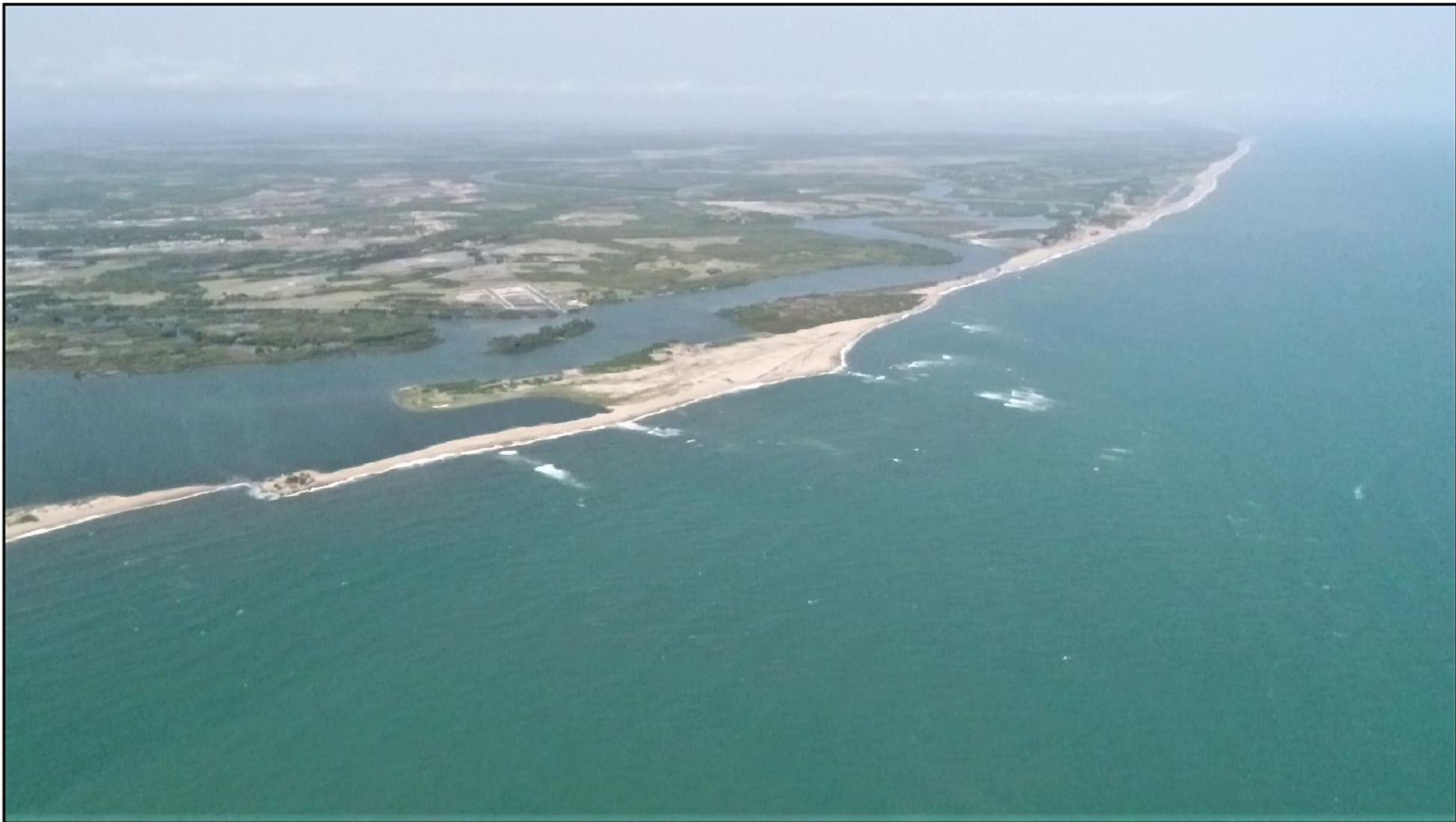
**Location: Ghavia Acquaculture
Co. Ltd, Ada
Greater Accra
Map 81**



**Location: Estuary (Beginning)
Ada, Greater Accra Region
Map 81**



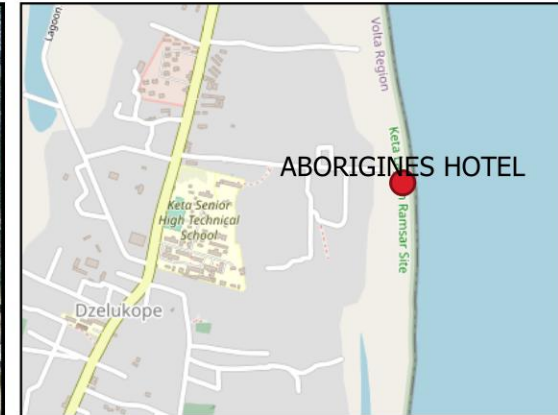
**Location: Estuary (Middle)
Ada, Greater Accra Region
Map 82**



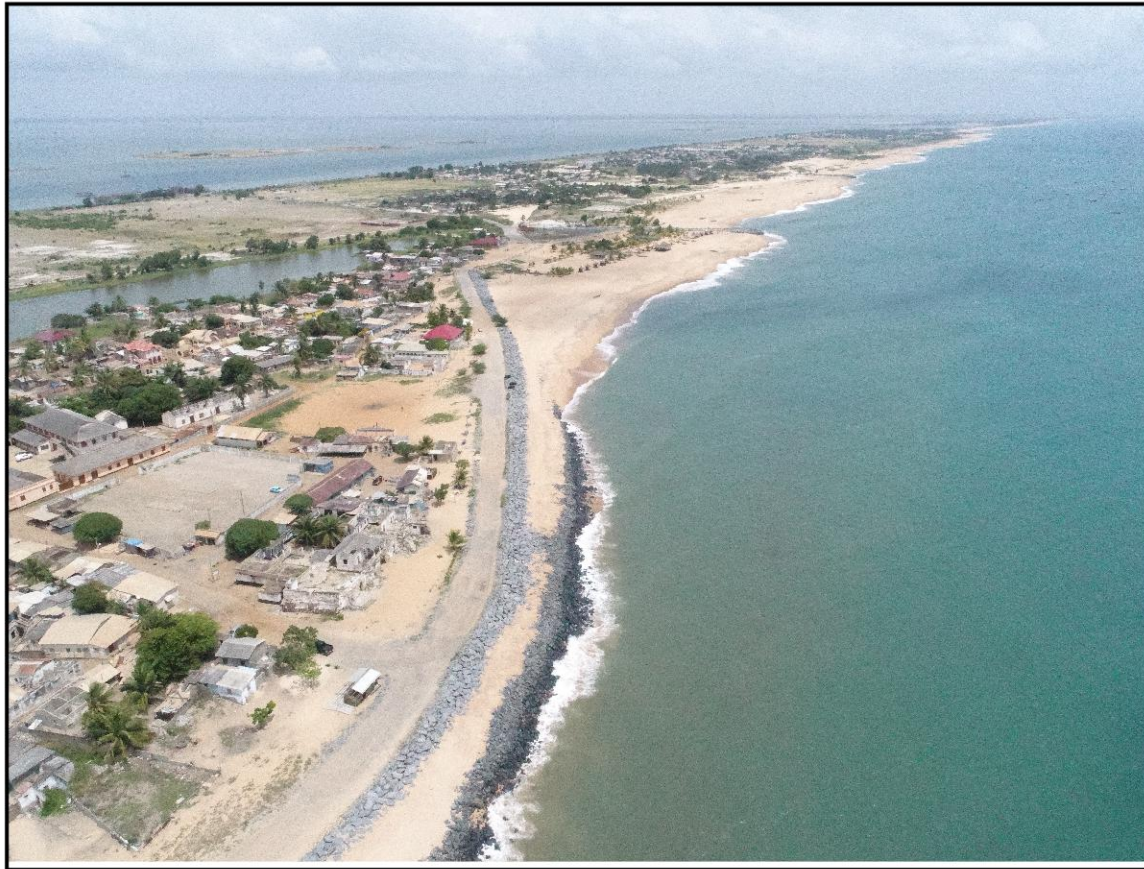
Location: Estuary (Right)
Ada, Greater Accra Region
Map 82



**Location: Sea Defence at
Atorkor, Volta Region
Map 85**



**Location: Aborigines Hotel & Agblor Lodge at Keta Beach, Volta Region
Map 90**



**Location: Fort Prinzenstein
Keta, Volta Region
Map 91**

LEGEND



MOTORWAY



MAIN ROAD



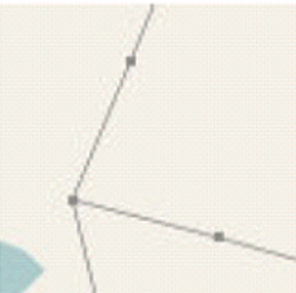
RAILWAY



ADMINISTRATIVE BOUNDARY



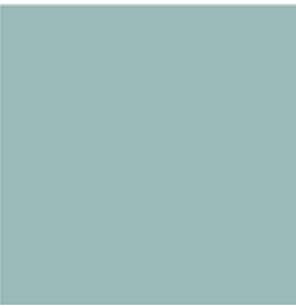
PROTECTED AREA



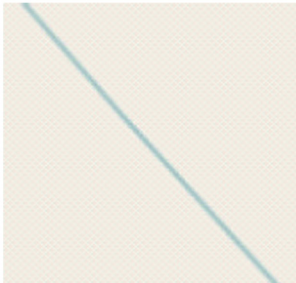
POWER LINES



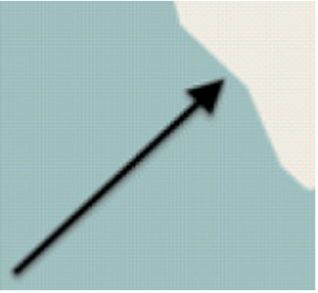
RIVER



WATERBODY



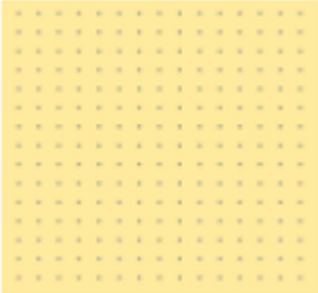
STREAM



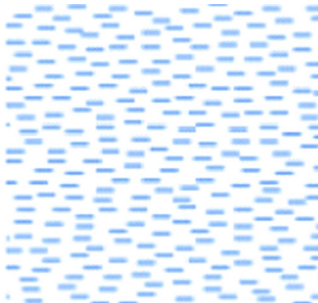
COASTLINE



PIER



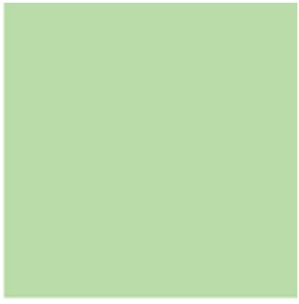
BEACH



WETLAND



FOREST



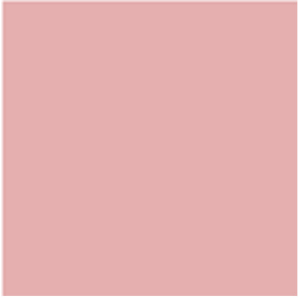
GRASSLAND



RECREATION GROUNDS



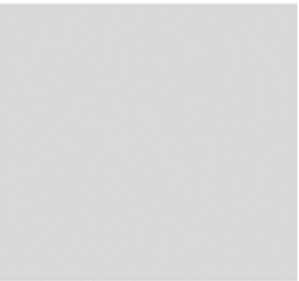
GOLF COURSE



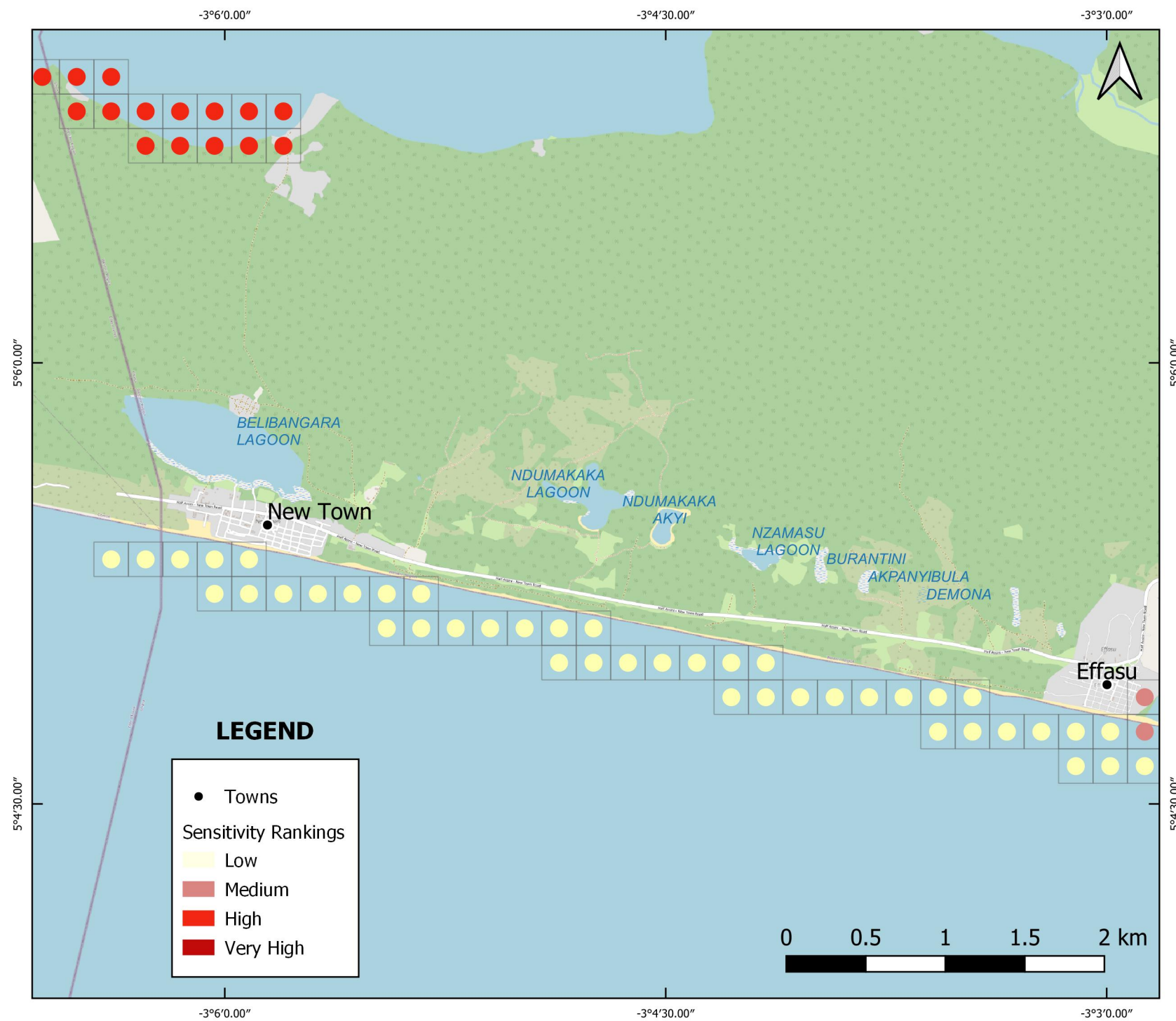
COMMERCIAL



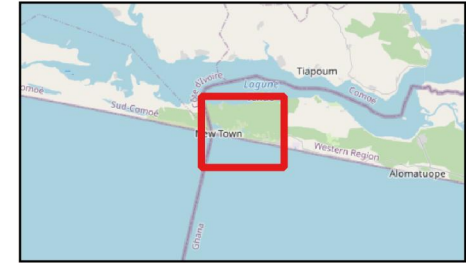
INDUSTRIAL



RESIDENTIAL



Ecological Sensitivity Atlas Map 1



PHYSICAL ENVIRONMENT

The beach is fine-grained sand with a low slope. There are eight small lagoons in the area, i.e. the Belibangara, the Ndukaka, the Ndukaka Akyi, the Nzamasu, the Burantini, the Demona, and the Akpanyibula. They are all closed without connection to the sea and will therefore not be affected by an oil spill at sea.

ECOLOGICAL ENVIRONMENT

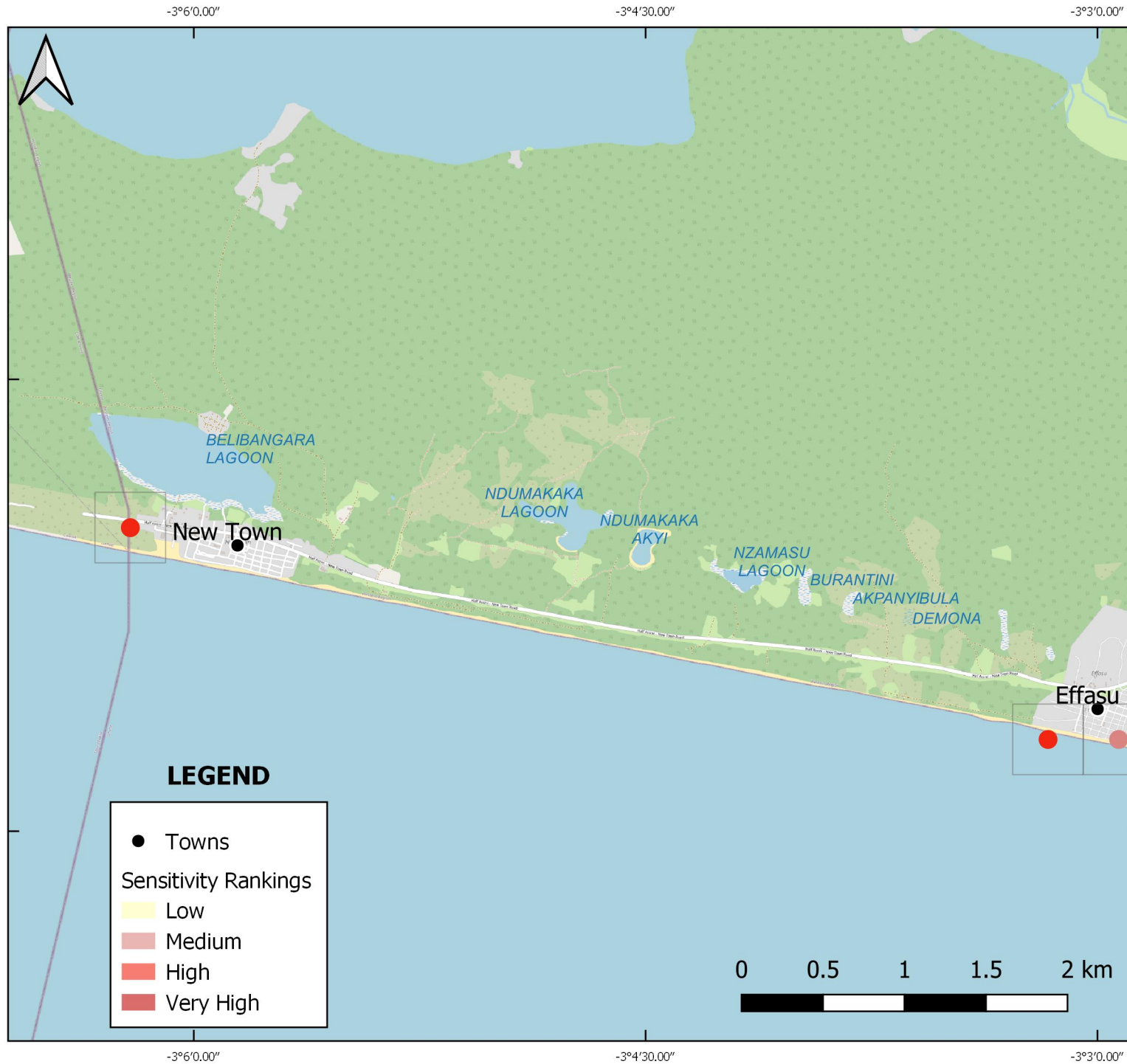
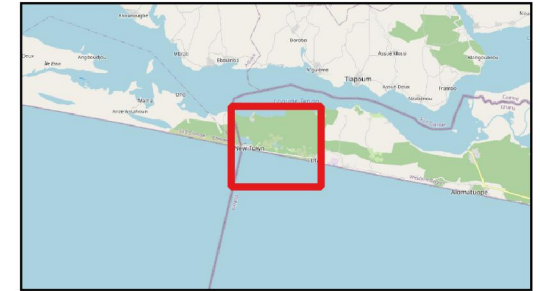
The species diversity on sandy beaches is low.

Lagoons

Birds: The lagoons are feeding sites for waterfowl including Fulvous tree duck, White faced tree duck, Black-winged stilt, Little egret and Great white egret.



Socio-economic Sensitivity Atlas Map 1



PHYSICAL ENVIRONMENT

The beach is fine-grained sand with a low slope. There are eight small lagoons in the area, i.e. the Belibangara, the Ndukakaka, the Ndukakaka Akyi, the Nzamasu, the Burantini, the Demona, and the Akpanyibula. They are all closed without connection to the sea and will therefore not be affected by an oil spill at sea.

HUMAN ACTIVITY

Coastal Fishery: There is a fish landing site east of Avalienu (New town). The main fishing methods used are set nets and ali nets.



Ecological Sensitivity Atlas Map 2



PHYSICAL ENVIRONMENT

The beach is fine grained sand with a low slope. There are four small lagoons in the area. They are all closed without connection to the sea and will therefore not be affected by an oil spill at sea.

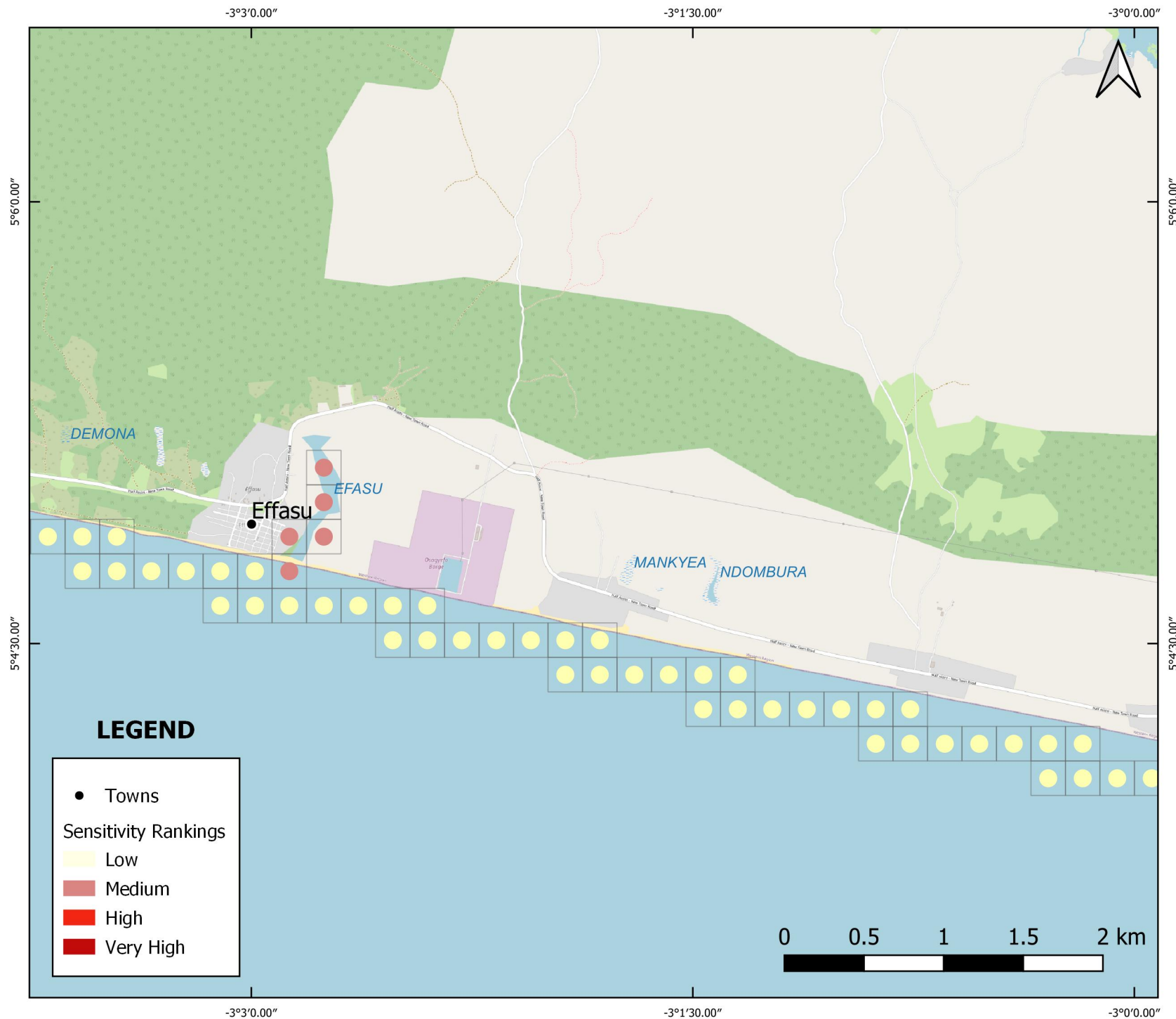
ECOLOGICAL ENVIRONMENT

The species diversity on sandy beaches is low.

Lagoons

Birds: The lagoons are feeding sites for waterfowl including Fulvous tree duck, White faced tree duck, Black-winged stilt, Little egret and Great white egret.

Other: There is a population of crocodiles at Efasu lagoon.



Socio-economic Sensitivity Atlas Map 2

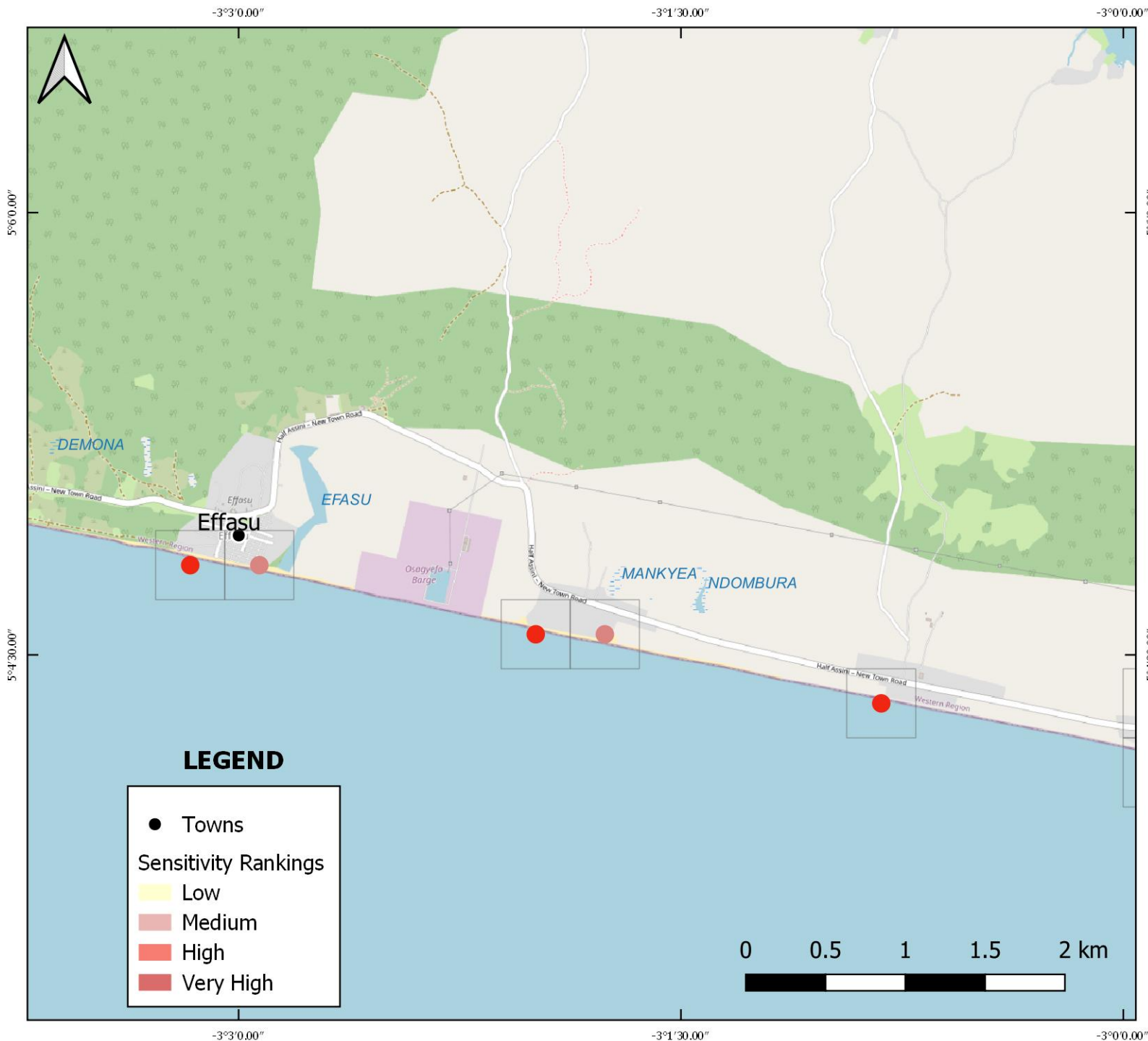


PHYSICAL ENVIRONMENT

The beach is fine grained sand with a low slope. There are four small lagoons in the area. They are all closed without connection to the sea and will therefore not be affected by an oil spill at sea.

HUMAN ACTIVITY

Coastal Fishery: There are fish landing sites at Efasu, Mangyea and Nzimtianu. The fishing methods used at Efasu are beach seining and purse seining whereas at Mangyea purse seining and ali nets are used. At Nzimtianu purse seining, beach seining, ali nets and set nets are used.

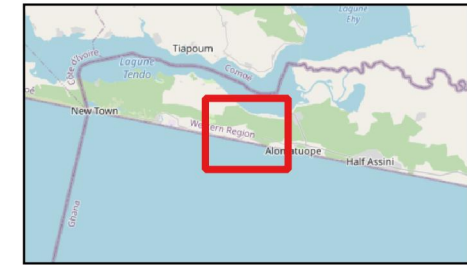


LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



Ecological Sensitivity Atlas Map 3



PHYSICAL ENVIRONMENT

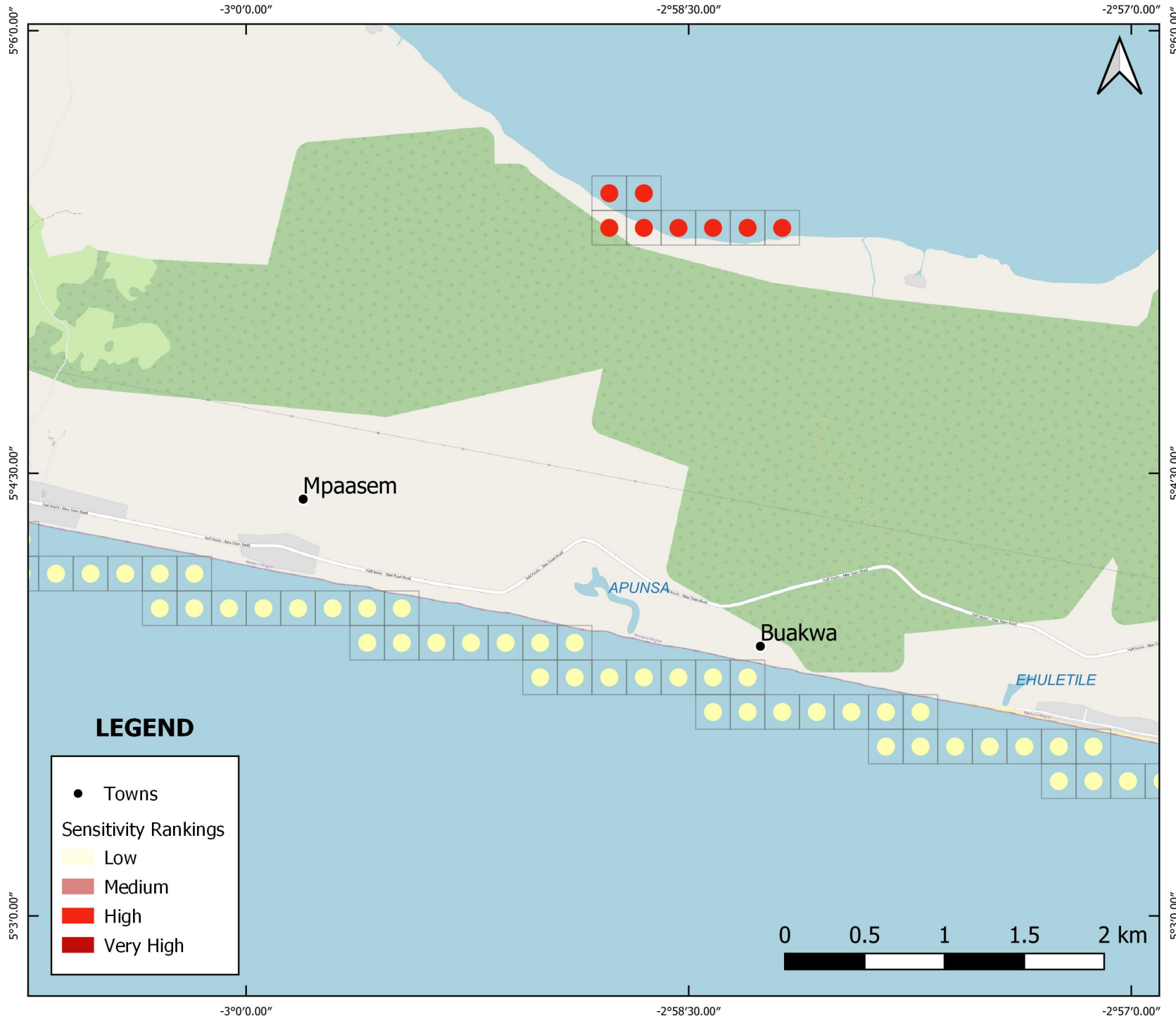
The beach is fine grained sand with a low slope. There are two small lagoons in the area (the Apunsa and the Ehuletile). They are closed without connection to the sea and will therefore not be affected by an oil spill at sea.

ECOLOGICAL ENVIRONMENT

The species diversity on the sandy beaches is low.

Lagoons

Birds: The lagoons are feeding sites for waterfowl including Fulvous tree duck, White faced tree duck, Black-winged stilt, Little egret and Great white egret. There are also fishing terns in the area.



LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Socio-economic Sensitivity Atlas Map 3

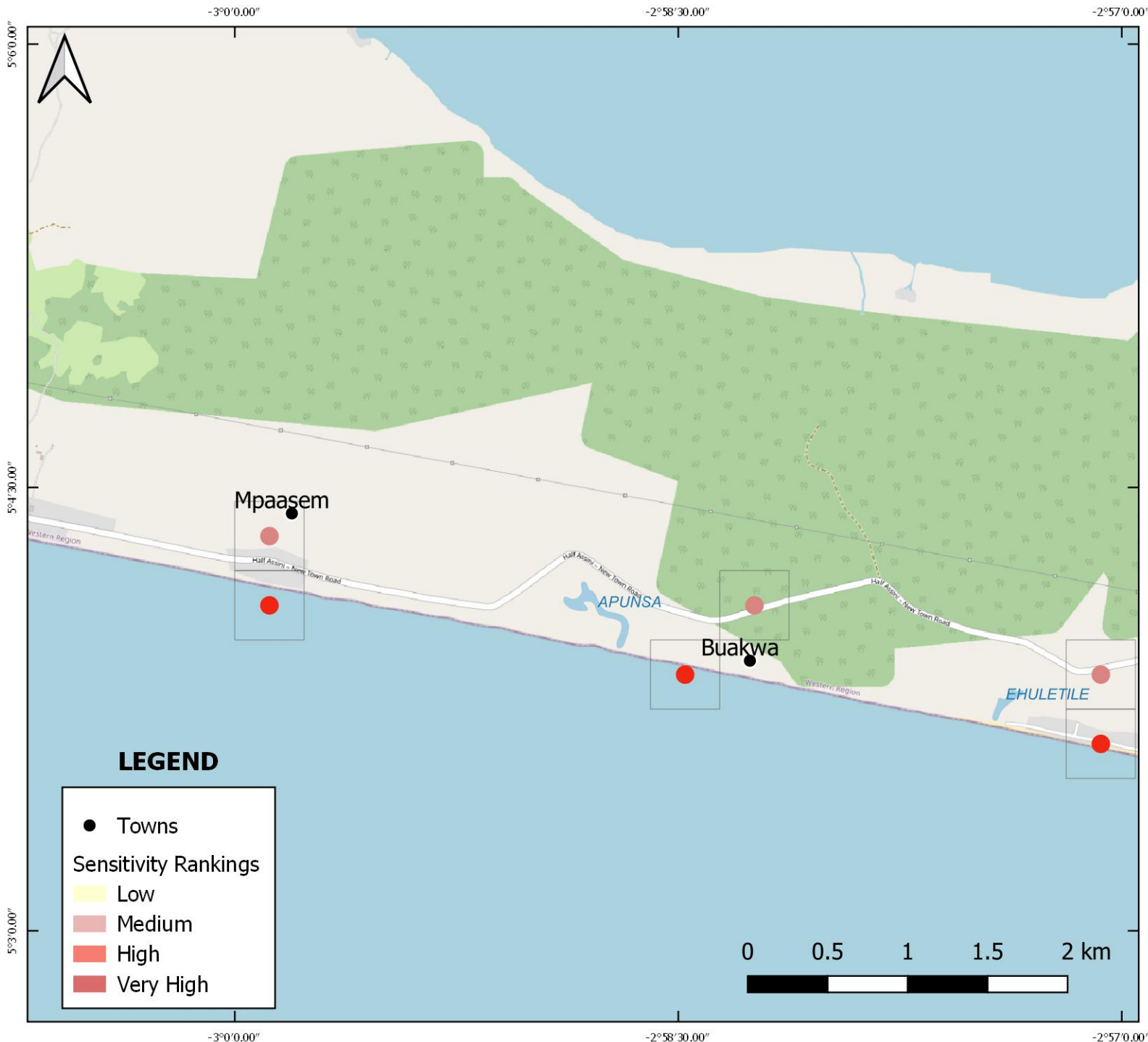


PHYSICAL ENVIRONMENT

The beach is fine grained sand with a low slope. There are two small lagoons in the area (the Apunsa and the Ehuletile). They are closed without connection to the sea and will therefore not be affected by an oil spill at sea.

HUMAN ACTIVITY

Coastal Fishery: There are two fish landing sites, one at Mpeasem and the other at Buakwa. The fishing methods used at Mpeasem are beach seining and set nets whereas at Buakwa beach seining is used.

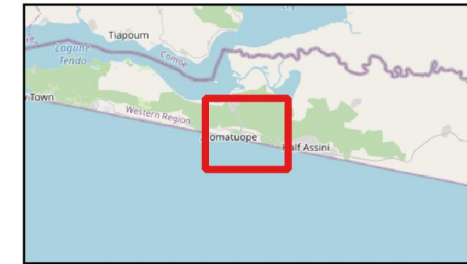


LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



Ecological Sensitivity Atlas Map 4



PHYSICAL ENVIRONMENT

The beach is fine grained sand with a low slope. There are two small lagoons in the area, the Kafodi and the Metika. They are closed and will therefore not be affected by an oil spill at sea.

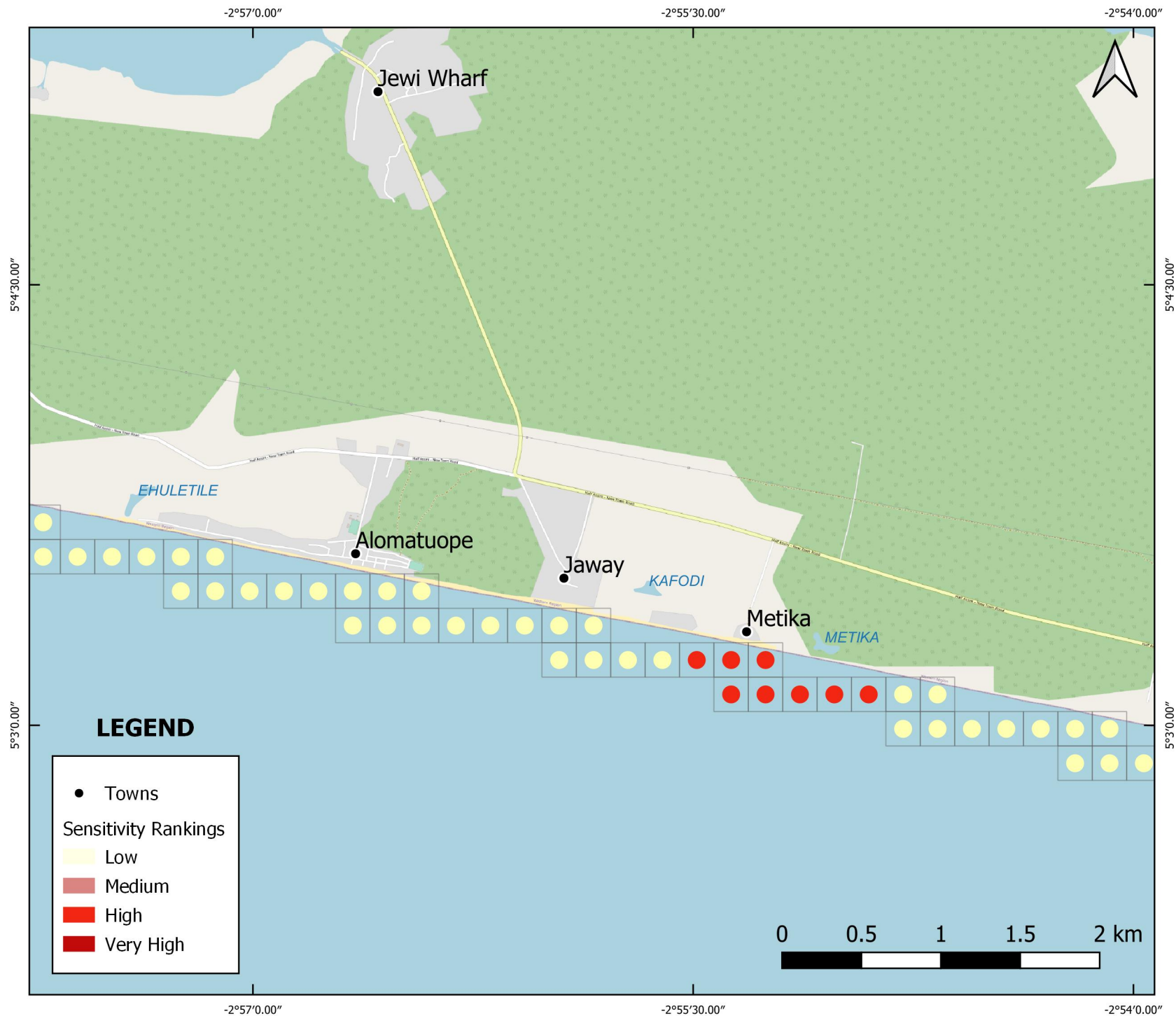
ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

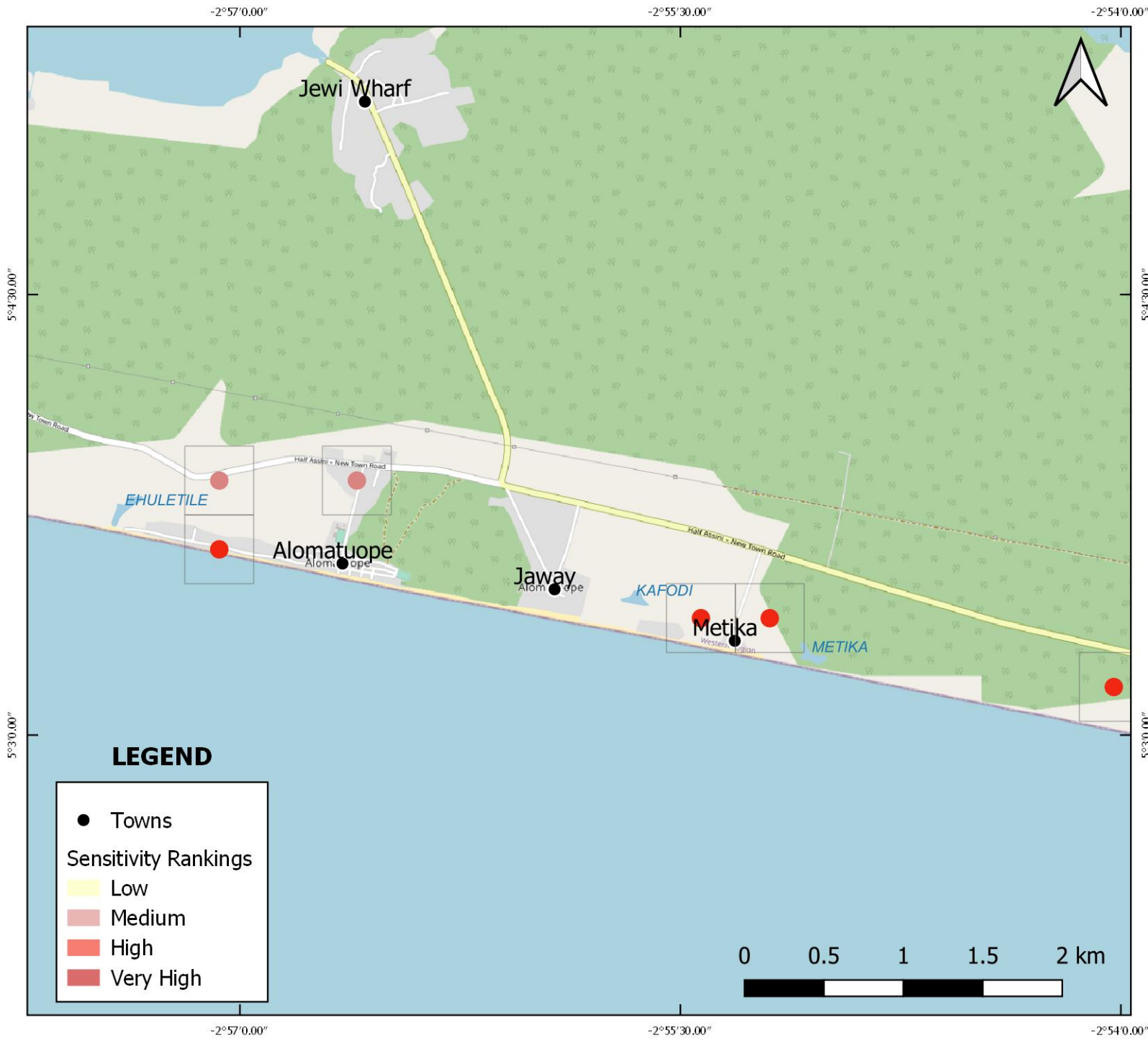
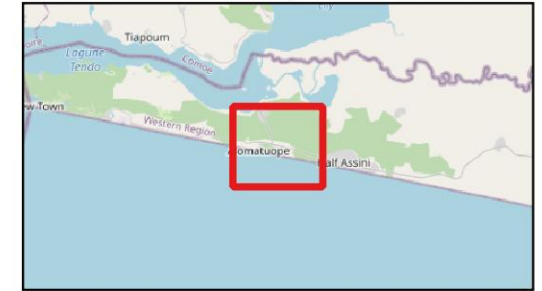
Lagoons

Birds: The Metika lagoon is a feeding site for waterfowl including Fulvous tree duck, White faced tree duck, Black-winged stilt, Little egret and Great white egret. There are also fishing terns in the area.

Turtle nesting sites: There are turtle nesting sites in the area.



Socio-economic Sensitivity Atlas Map 4



PHYSICAL ENVIRONMENT

The beach is fine grained sand with a low slope. There are two small lagoons in the area, the Kafodi and the Metika. They are closed and will therefore not be affected by an oil spill at sea.

HUMAN ACTIVITY

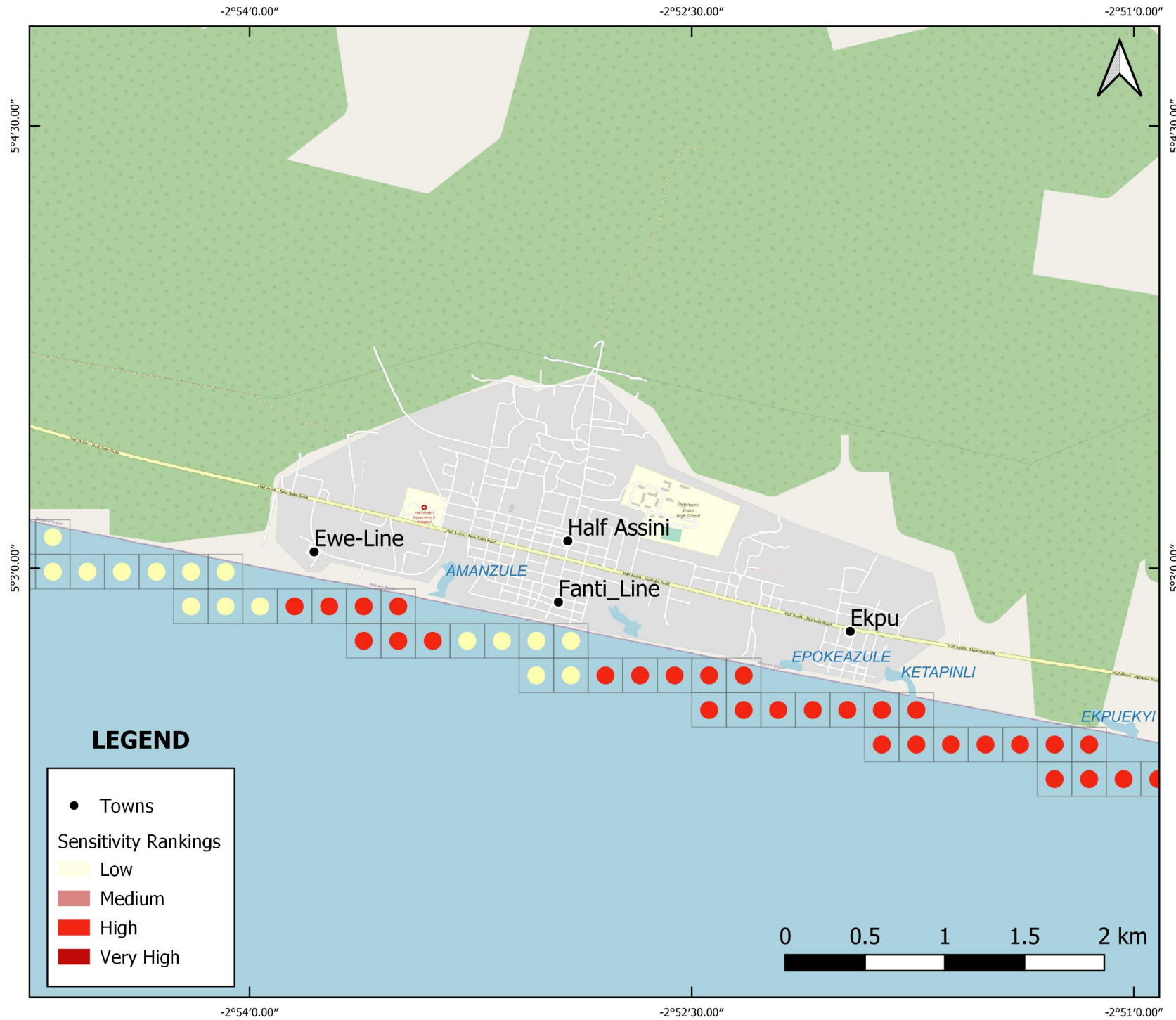
Coastal Fishery: There are four fishing landing sites, the Aloumatuope-Fanti, the Aloumatuope-Ewe, Gyawue and Metika. The fishing method used at Aloumatuope- Ewe, Gyawue and Metika is beach seining. At Aloumatuope-Fanti fishing is carried out by ali net method.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Ecological Sensitivity Atlas Map 5



PHYSICAL ENVIRONMENT

The beach is fine grained sand with a low slope. There are four small lagoons in the area. The Amanzule, the Anwiame-Anluonu and the Kelapini lagoons are open and connected to the sea. The Epokeazule is closed and will therefore not be affected by an oil spill at sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Lagoons

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Birds: The lagoons are feeding sites for waterfowl including Egret, Black-winged stilt, Common sandpiper, Ringed plover and Grey plover. There are also Common terns in the area.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priopthalmus kaelruti*, freshwater species such as *Oreochromis niloticus* and *Tilapia zillii* and marine species like *Albula vulpes* and *Lutjanus fulgens*.

The lagoons are nursery grounds for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This include for instance the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High

Socio-economic Sensitivity Atlas Map 5

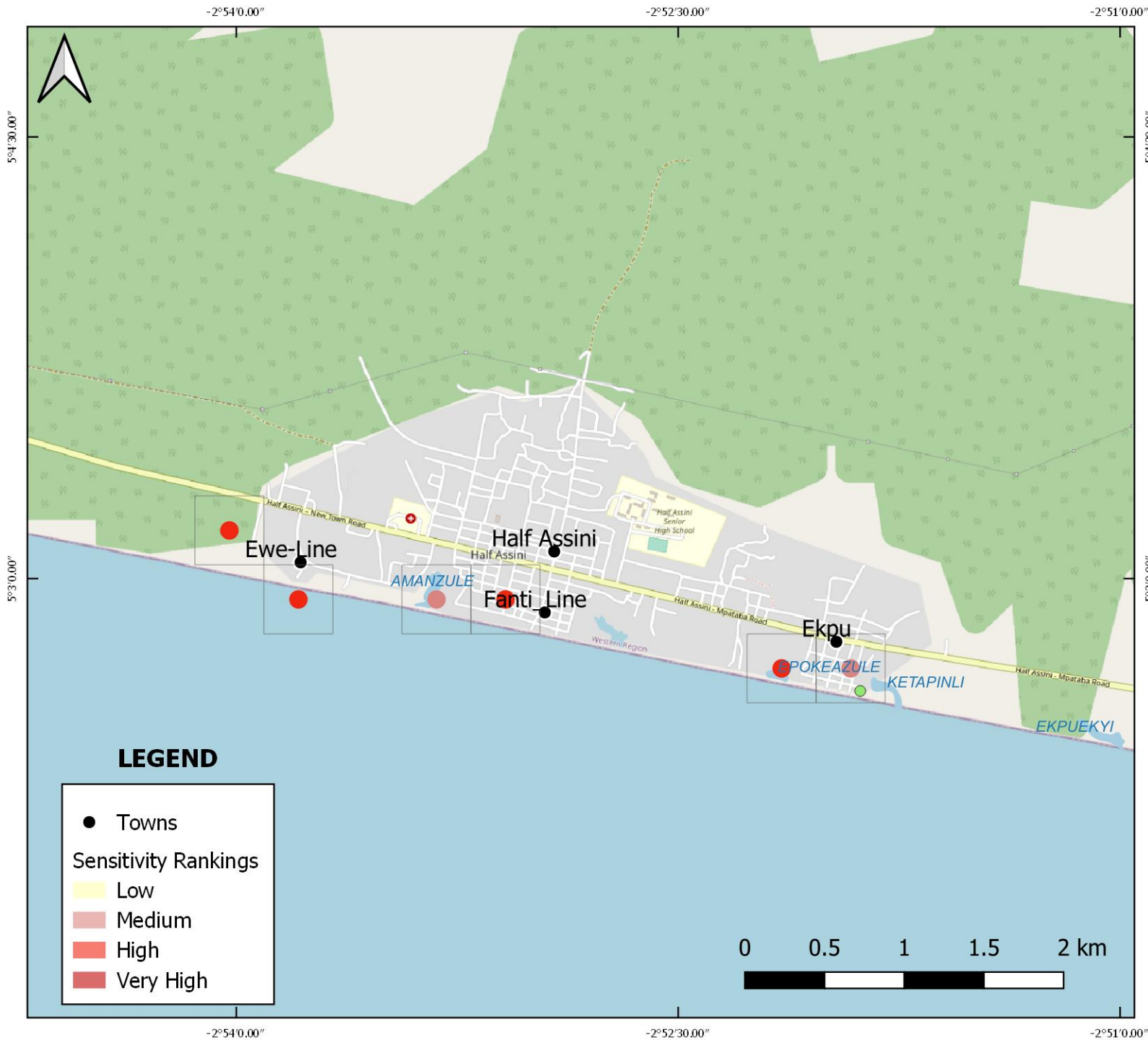


PHYSICAL ENVIRONMENT

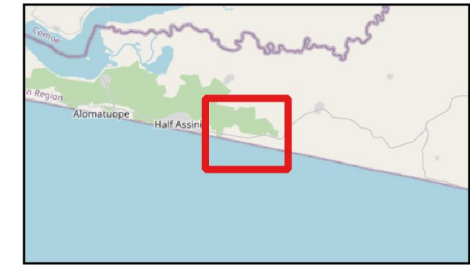
The beach is fine grained sand with a low slope. There are four small lagoons in the area. The Amanzule, the Anwiane-Anluonu and the Kelapini lagoons are open and connected to the sea. The Epokeazule is closed and will therefore not be affected by an oil spill at sea.

HUMAN ACTIVITY

Coastal Fishery: There are two landing sites at Awiane (Half Assini). The Ewe-line and the Fante-line. At the Ewe-line fishing is carried out by beach seining whereas at the Fante-line fishing is mainly carried out by ali nets and beach seining. At Ekpu fishing is done using purse seining, ali nets and set nets. Beach seining is also used.



Ecological Sensitivity Atlas Map 6



PHYSICAL ENVIRONMENT

The beach is fine grained sand with a low slope. There are two small lagoons in the area, the Ekpuekyi and the Ahobreum. They are both open and connected to the sea.

ECOLOGICAL ENVIRONMENT

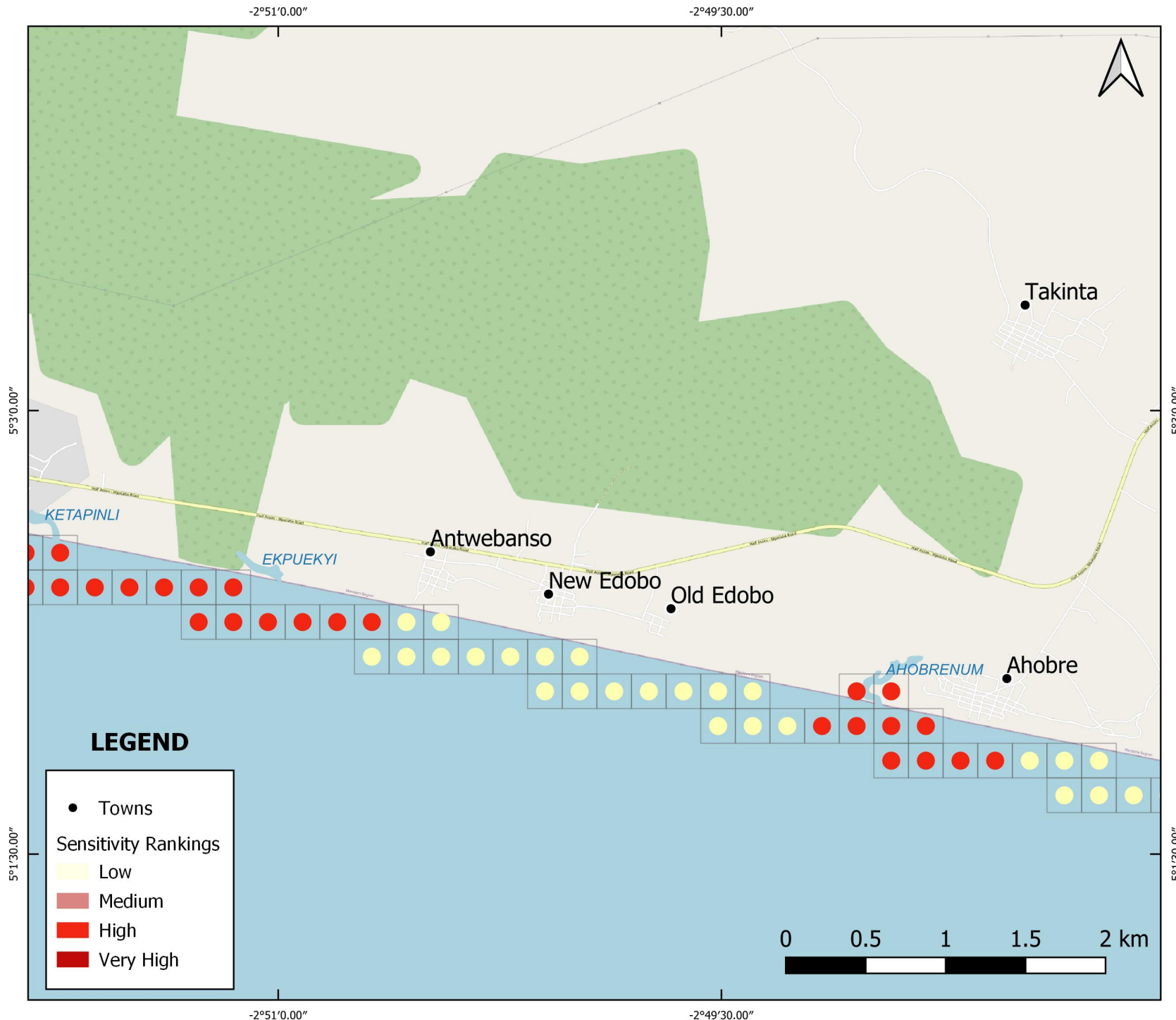
Sandy beaches generally have low species diversity

Ekpuekyi and Ahobreum lagoons
The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Birds: The lagoons are feeding sites for waterfowl including Egret, Black-winged stilt, Common sandpiper, Ringed plover and Grey plover. There are also common terns in the area.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priopthalmus kaelruti*, freshwater species like *Oreochromis niloticus* and *Tilapia zillii* and marine species like *Albula vulpes* and *Lutjanus fulgens*

The lagoons are nursery grounds for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This include for instance the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*



**Socio-economic Sensitivity Atlas
Map 6**

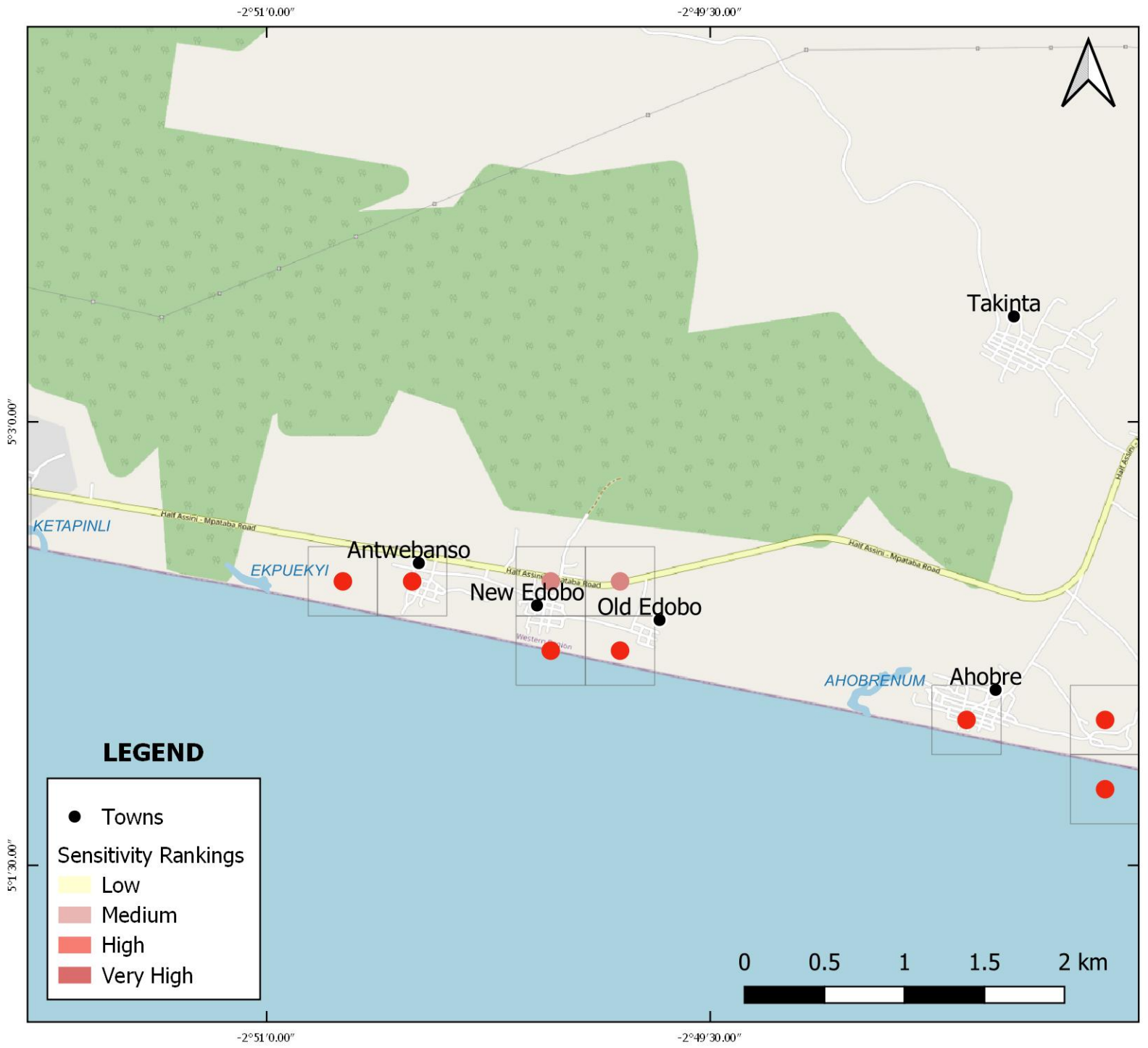


PHYSICAL ENVIRONMENT

The beach is fine grained sand with a low slope. There are two small lagoons in the area, the Ekpuekyi and the Ahobreum. They are both open and connected to the sea.

HUMAN ACTIVITY

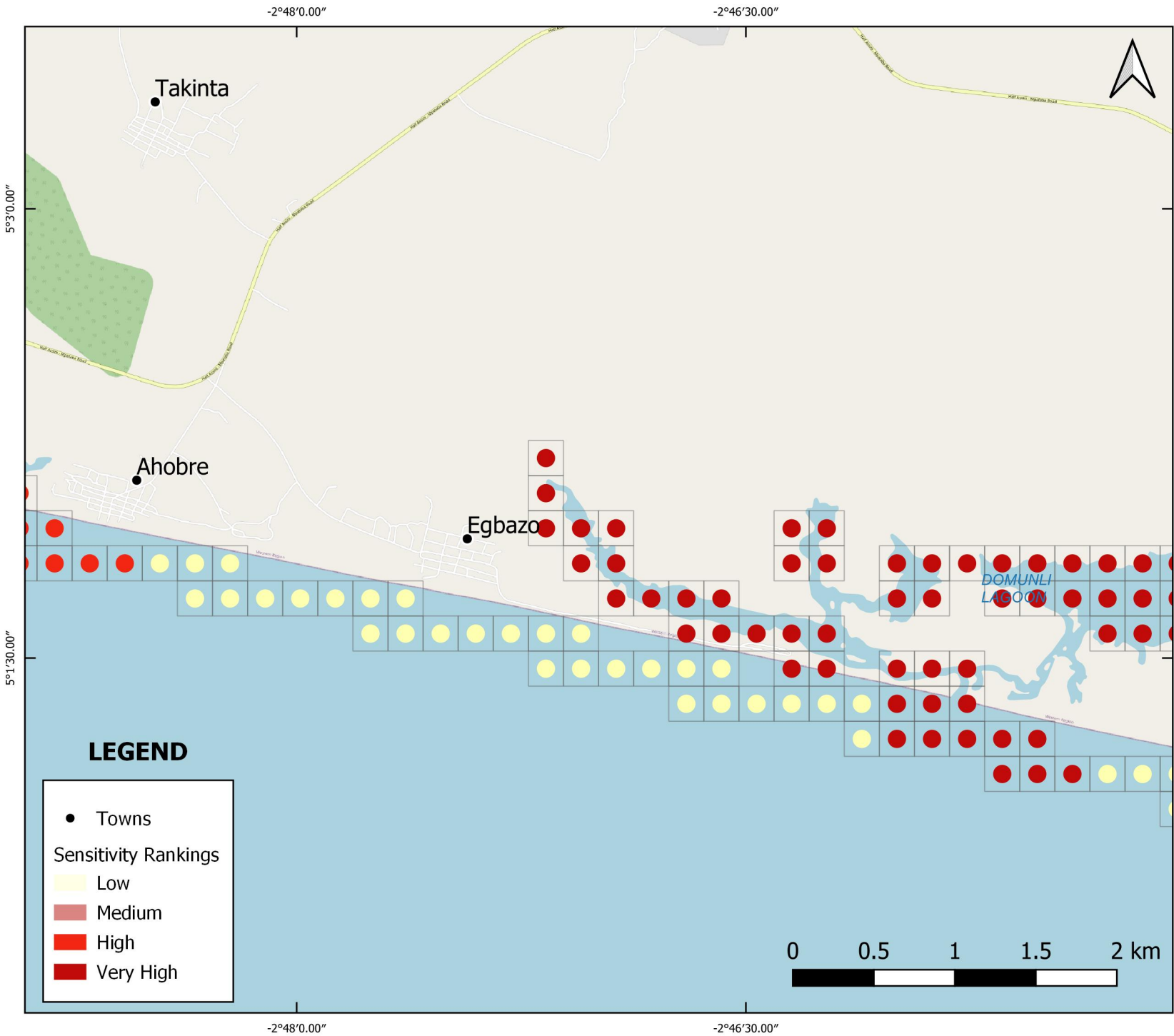
Coastal fishery: There are fish landing sites at Atwebanso, New Edobo, Old Edobo and Ahobre No 2 (Old Ahobre). The fishing method used at Atwebanso and New Edobo is beach seining. At Old Edobo, the two fishing methods employed are beach seining and purse seining, whereas at Old Ahobre, all nets and set nets are used.



LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High





Ecological Sensitivity Atlas Map [% "ID" %]



PHYSICAL ENVIRONMENT

The beach is predominantly fine grained sand with low slope. The Domini Lagoon is situated in the area. This lagoon is open and permanently connected to the sea. It stretches over an area of 1,560 km² (156,000 ha).

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Domunli Lagoon.
The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Vegetation: There are stands of mangroves in Domunli Lagoon.

Bird: The lagoon is feeding site for waterfowl including Common tern, Egret, Black-winged stilt, Common sandpiper, Ringed plover and Grey plover.

Fish and crustaceans: The fish fauna include true lagoon species like the cichlid *Sarotherodon melanotheron* and the mudskipper *Priophthalmus kaehruti*, freshwater species such as *Oreochromis niloticus* and *Tilapia zillii* and marine species like *Albula vulpes* and *Lutjanus fulgens*.

The lagoon is nursery ground for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.* *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

LEGEND

- Towns
- Sensitivity Rankings**
- Low
- Medium
- High
- Very High

Socio-economic Sensitivity Atlas Map 7

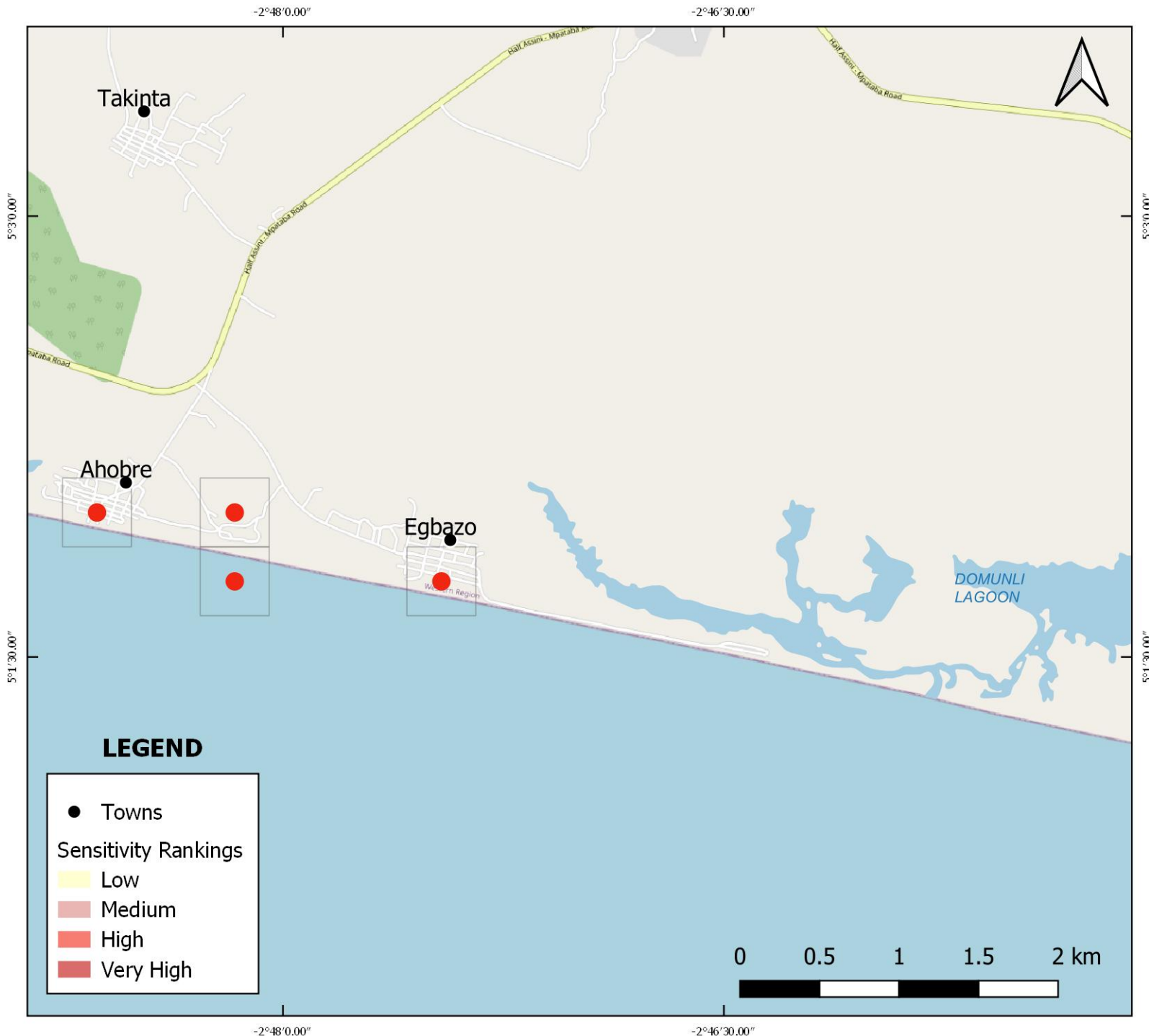


PHYSICAL ENVIRONMENT

The beach is predominantly fine grained sand with low slope. The Domini Lagoon is situated in the area. This lagoon is open and permanently connected to the sea. It stretches over an area of 1,560 km² (156,000 ha).

HUMAN ACTIVITY

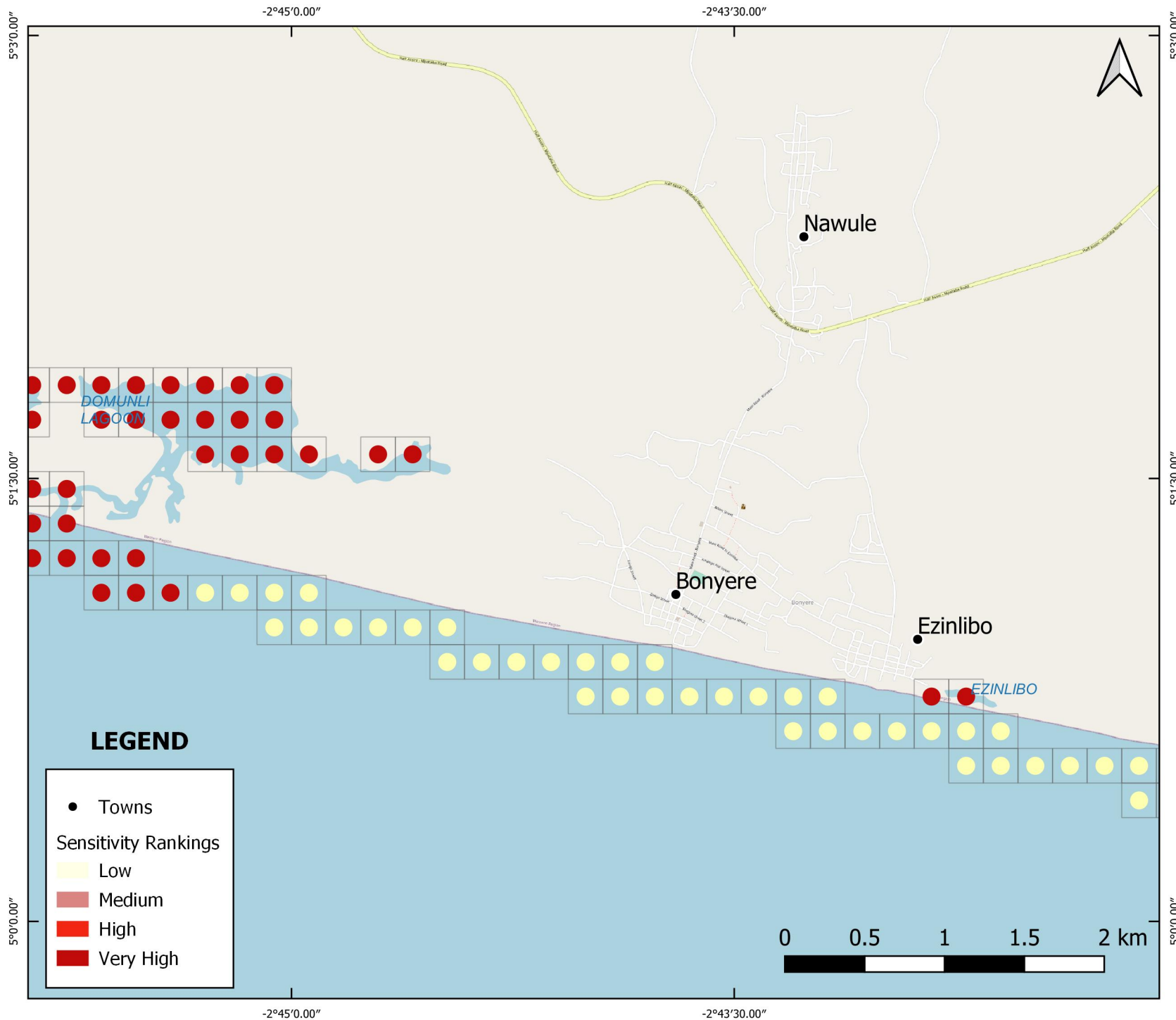
Coastal Fishery: There are two fishing villages in the area Ahobre No 1 (New Ahobre) and Egbazo. Ahobre No 1 has one fish landing beach the Ahobre Kakraba. The main fishing practice is purse seining and ali netting. Egbazo has one landing beach and the fishing method is beach seining



LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High





Ecological Sensitivity Atlas Map 8



PHYSICAL ENVIRONMENT

The beach facing the sea is fine grained sand with low slope. The Domunli Lagoon is situated in the area. This lagoon is open and permanently connected to the sea. It stretches over an area of 1,560 km² (156,000 ha).

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity. Domunli Lagoon.

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Vegetation: There are stands of mangroves in Domunli Lagoon.

Bird: The lagoon is feeding site for waterfowl including Common tern, Egret, Black-winged stilt, Common sandpiper, Ringed plover and Grey plover.

Fish and crustaceans: The lagoon is an important nursery site for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priopthalmus kaelruti*, freshwater species like the cichlids *Oreochromis niloticus* and *Tilapia zillii* and marine species like *Albula vulpes* and *Lutjanus fulgens*.



Socio-economic Sensitivity Atlas Map 8

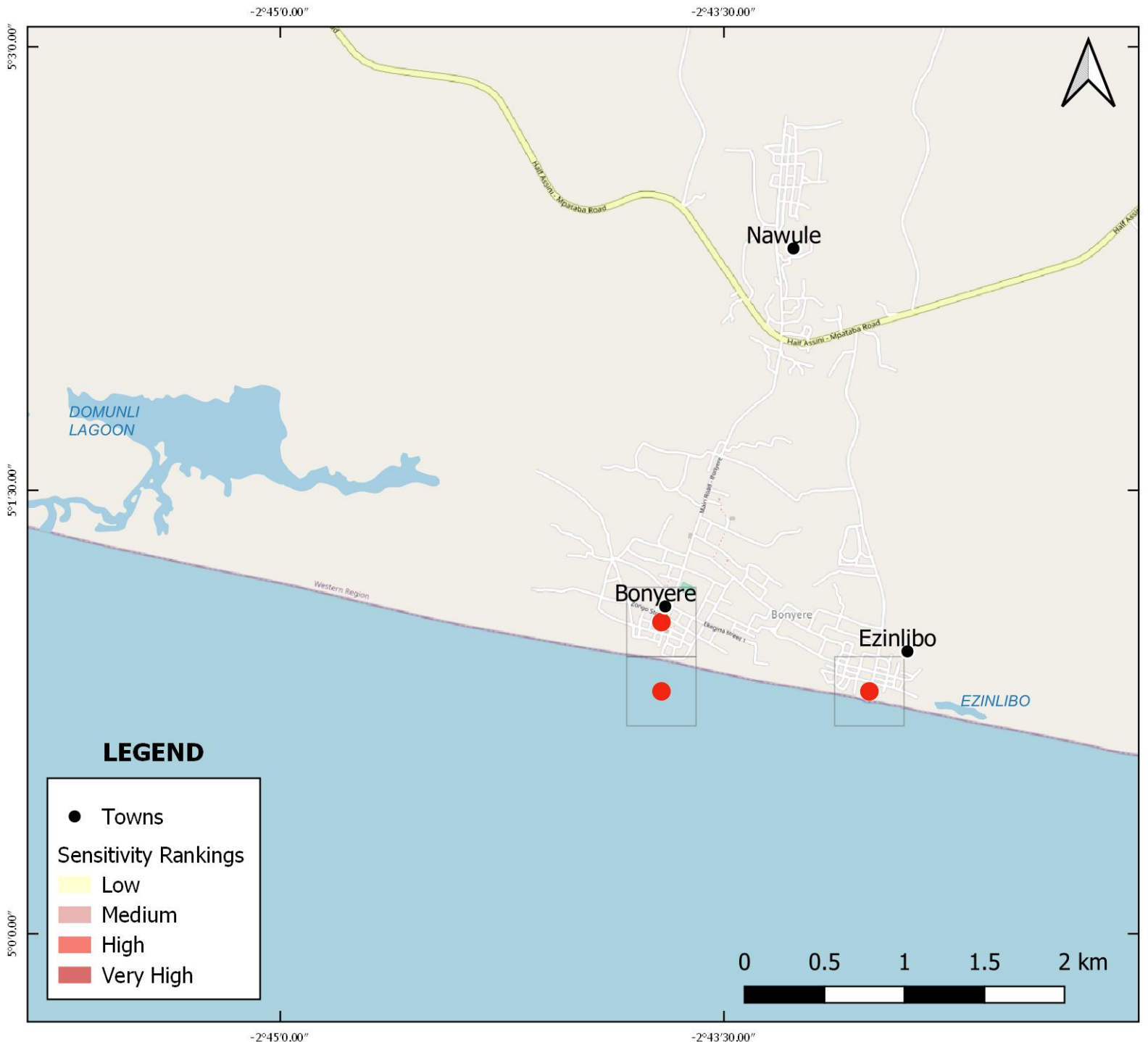


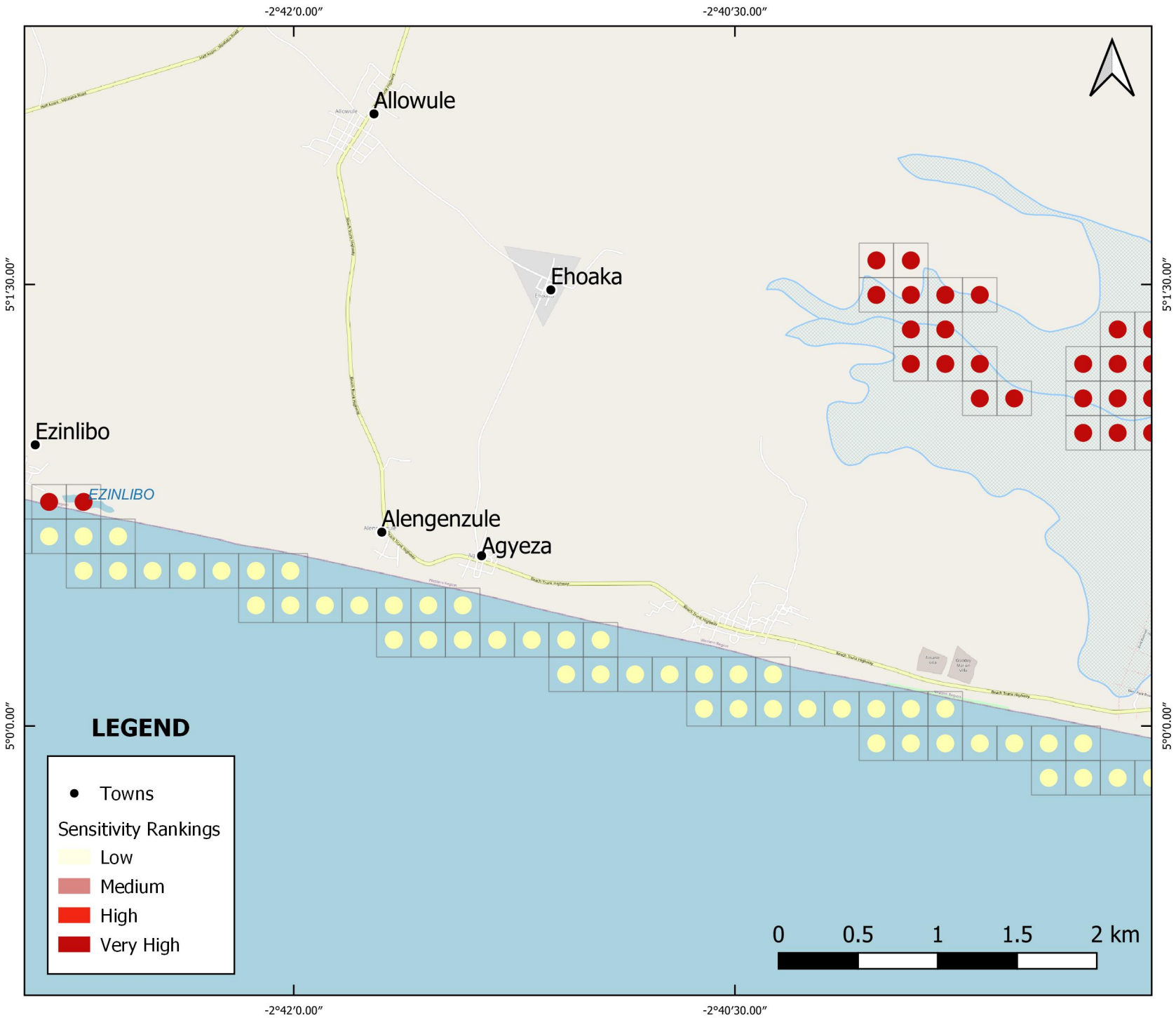
PHYSICAL ENVIRONMENT

The beach facing the sea is fine grained sand with low slope. The Domunli Lagoon is situated in the area. This lagoon is open and permanently connected to the sea. It stretches over an area of 1,560 km² (156,000 ha).

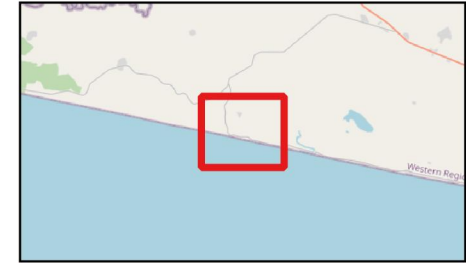
HUMAN ACTIVITY

Coastal Fishery. There are two fishing villages in the area Bonyere and Ezinlibo. Bonyere has one fish landing beach and uses beach seining. At Ezinlibo the fishing practice is set netting. Beach seining is also used.





Ecological Sensitivity Atlas Map 9



PHYSICAL ENVIRONMENT

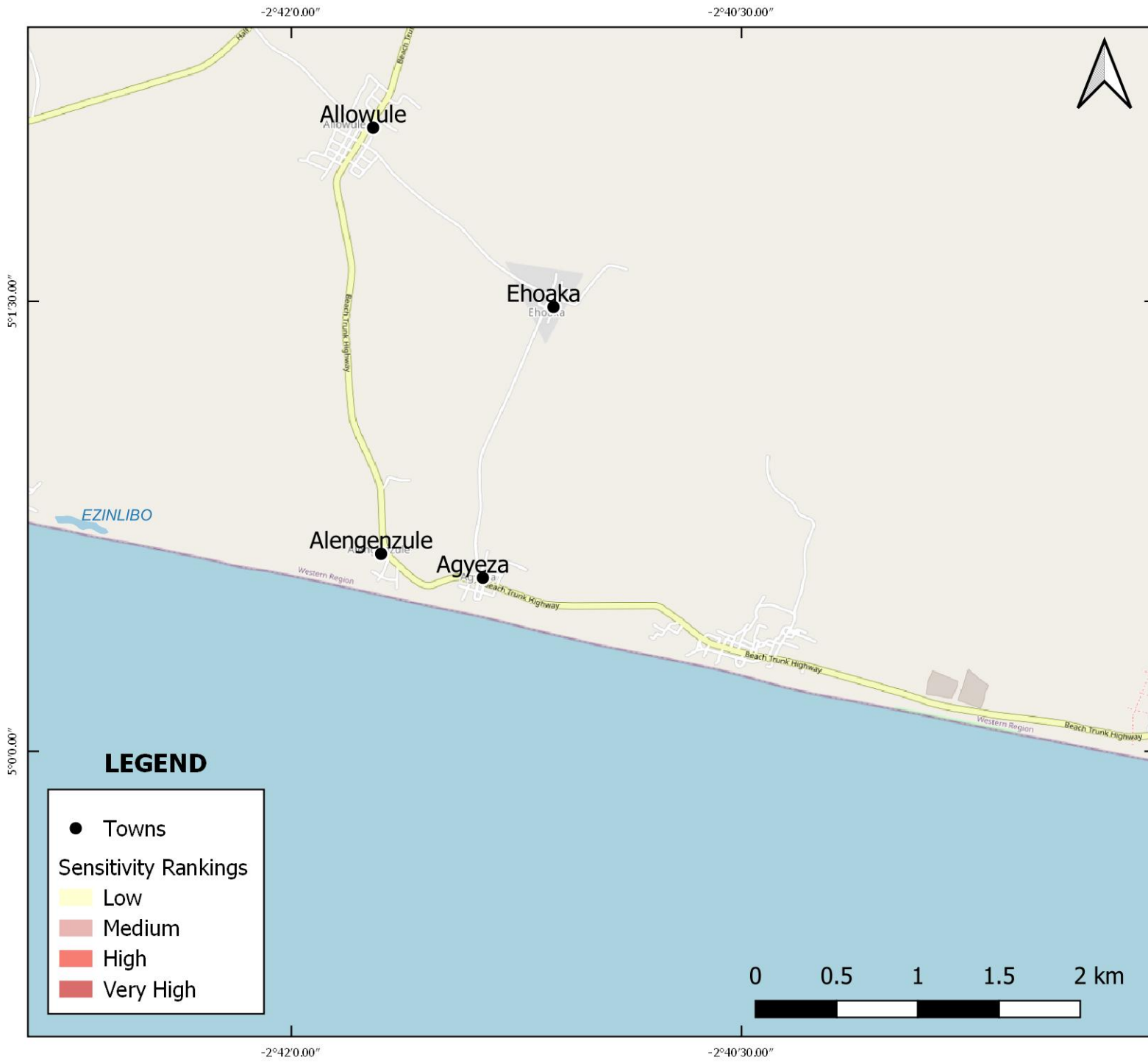
The beach is fine grained sand with low slope.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.



**Socio-economic Sensitivity Atlas
Map 9**



PHYSICAL ENVIRONMENT
The beach is fine grained sand with low slope.

HUMAN ACTIVITY
Coastal Fishery: There are two fishing villages in the area Agyeza and Twene each having one landing site. At Agyeza, the main fishing method is ali netting and the use of lobster nets. Beach seining is also used.



Ecological Sensitivity Atlas Map 10



PHYSICAL ENVIRONMENT

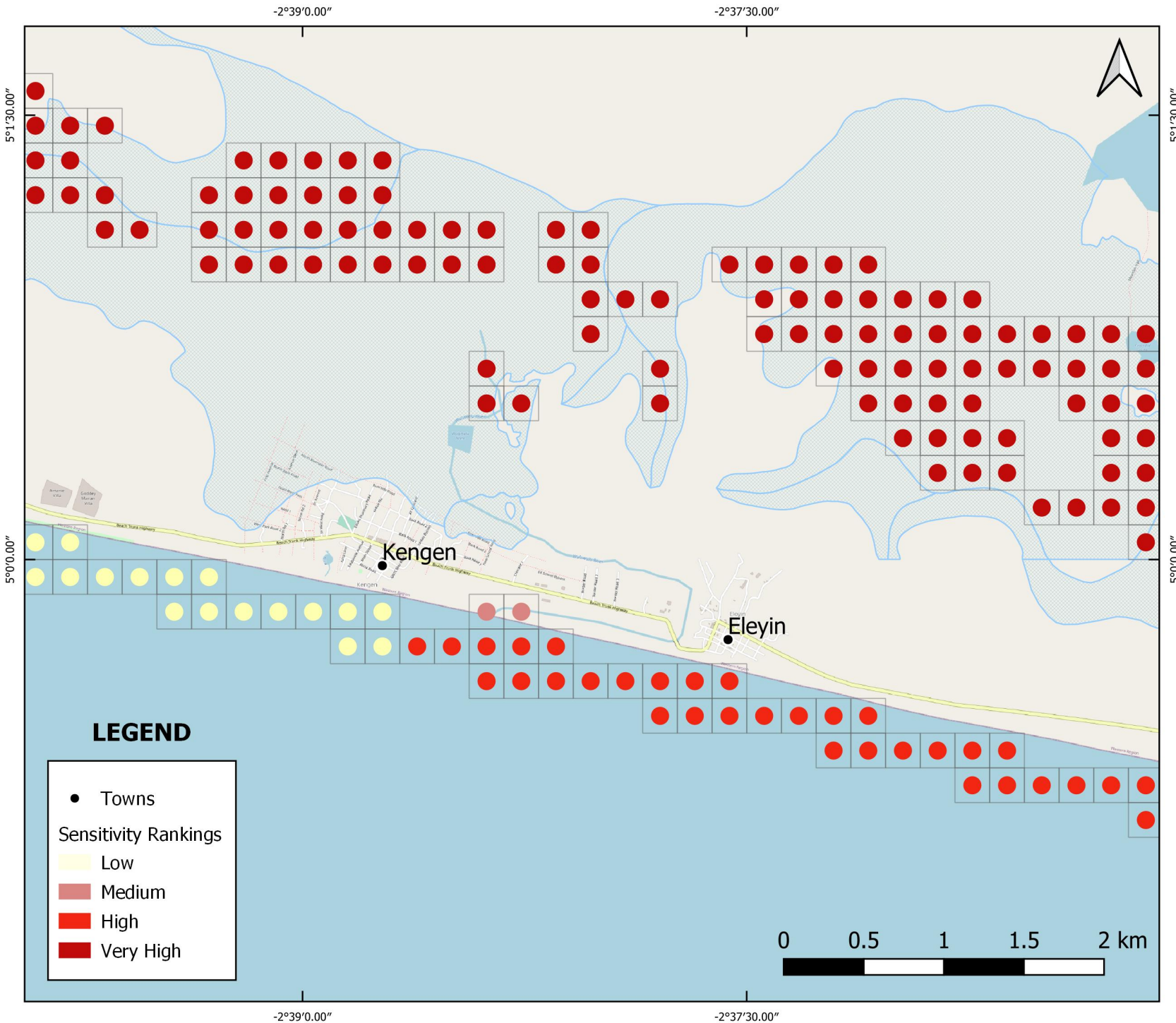
The beach is fine grained sand with low slope.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Turtle nesting sites

There are turtle nesting sites in the area.



**Socio-economic Sensitivity Atlas
Map 10**

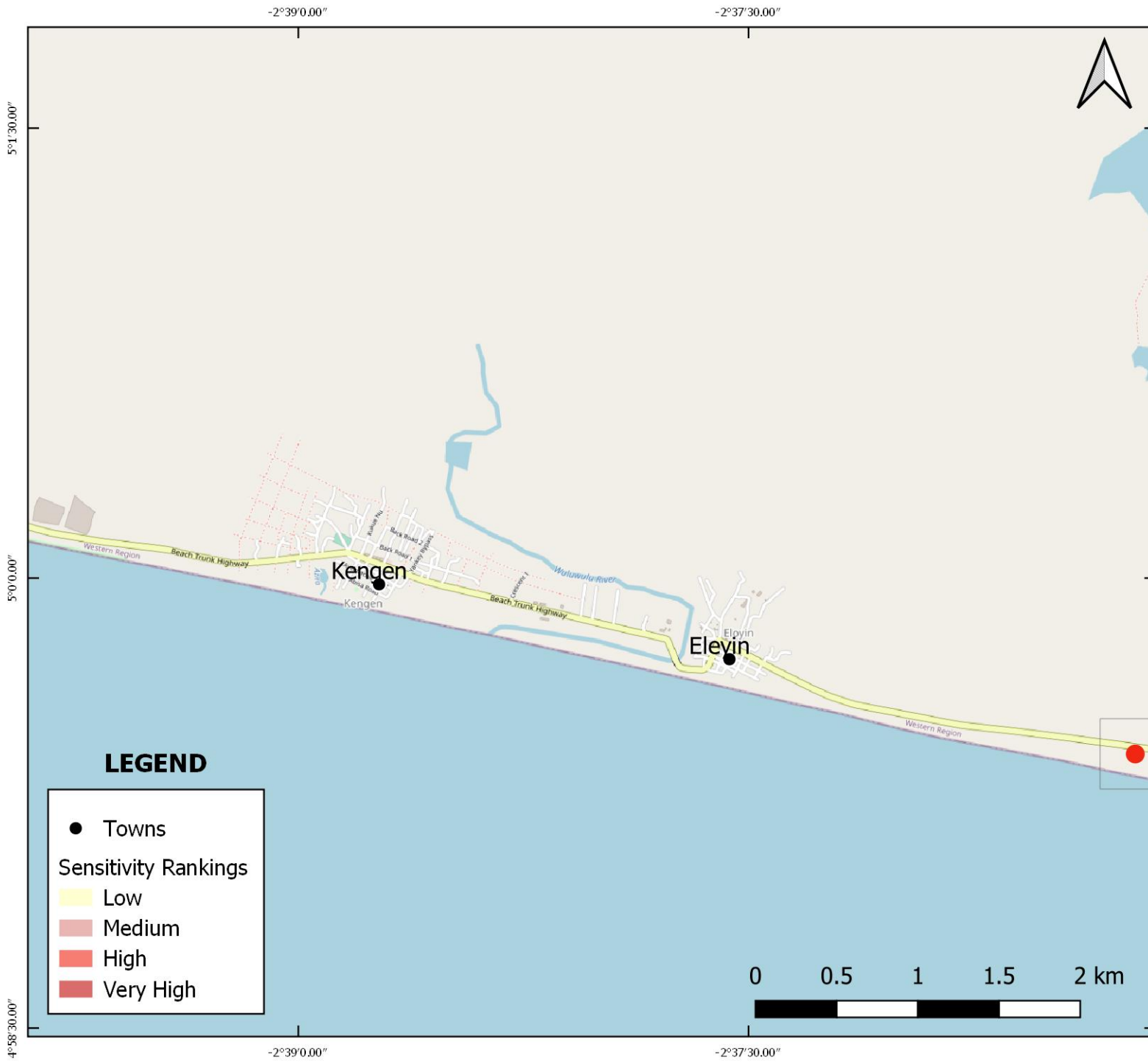


PHYSICAL ENVIRONMENT

The beach is fine grained sand with low slope.

HUMAN ACTIVITY

Coastal Fishery: There are two fishing landing sites located at Kengen and Elonyi. Beach seining is the predominant fishing method at Kengen and Elonyi.



5°1'30.00"
5°0'0.00"
5°0'0.00"
4°58'30.00"



Ecological Sensitivity Atlas Map 11



PHYSICAL ENVIRONMENT

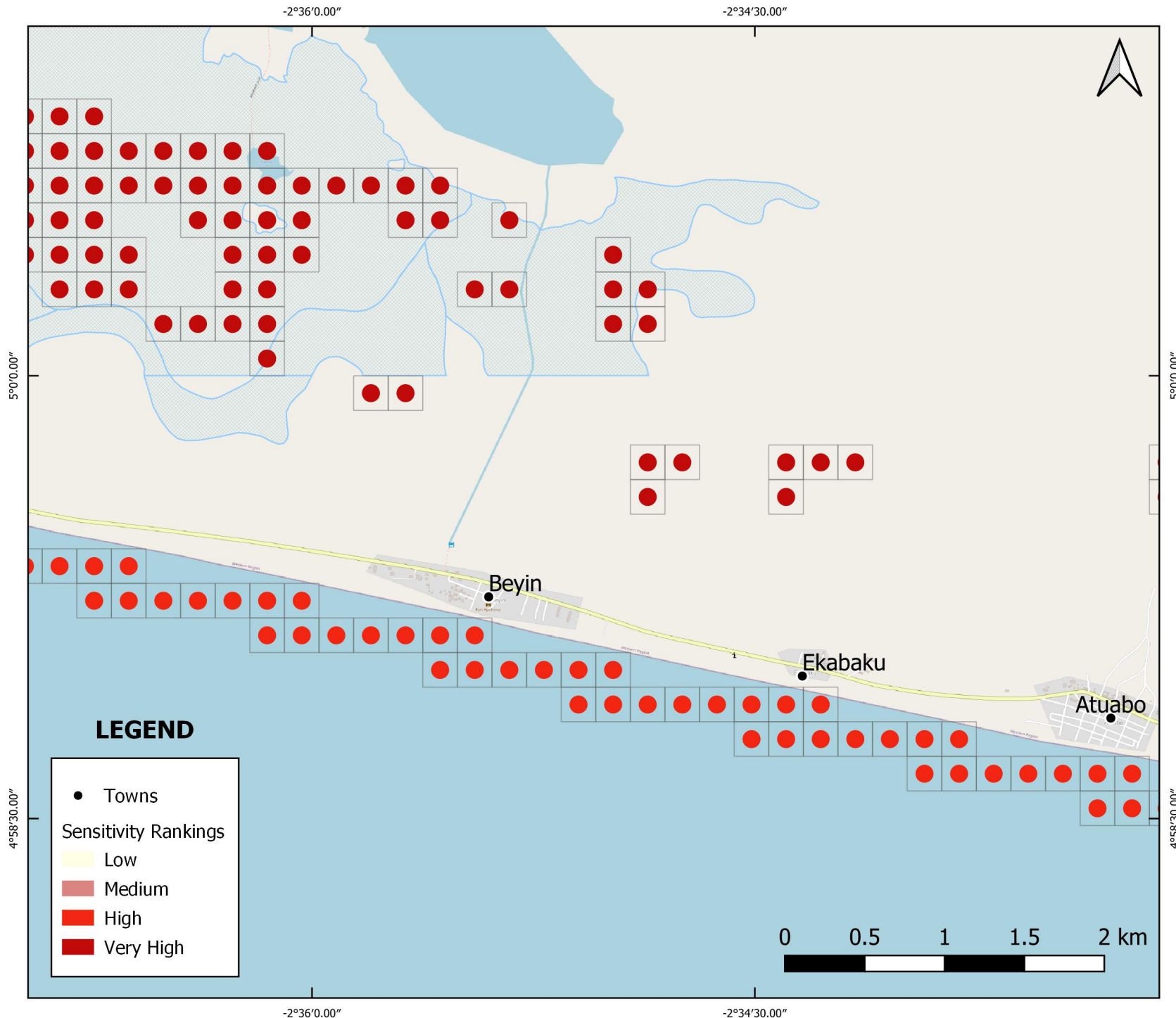
The beach is fine grained sand with low slope.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Turtle nesting sites

There are turtle nesting sites in the area.



Socio-economic Sensitivity Atlas Map 11



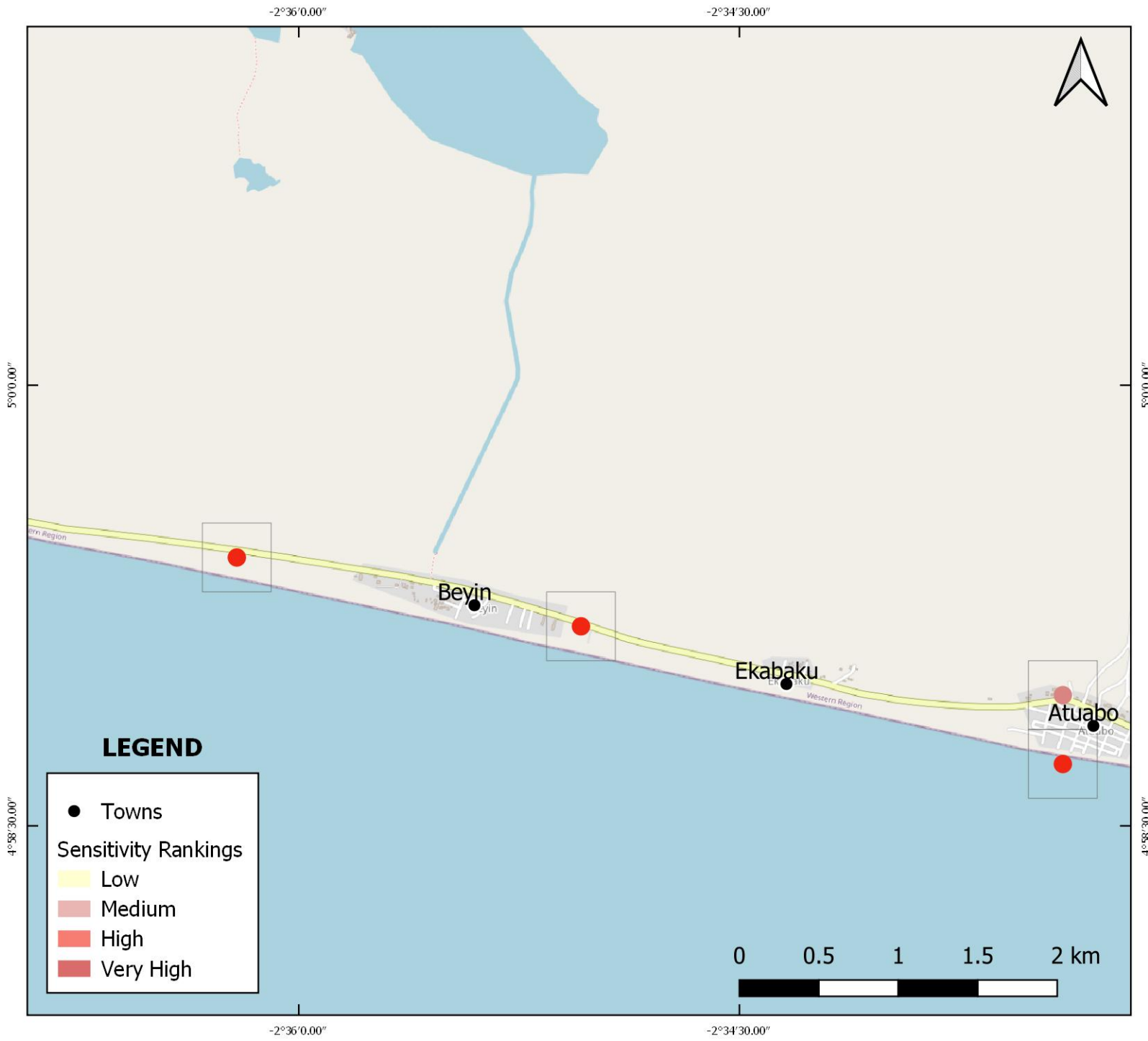
PHYSICAL ENVIRONMENT

The beach is fine grained sand with low slope.

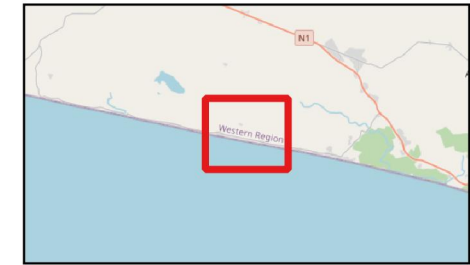
HUMAN ACTIVITY

Coastal Fishery: There are fish landing sites at Beyin and Kabaku. The fishing method used at Beyin and Kabaku is beach seining.

Recreation/tourism: There is a historical monument at Beyin. It is Fort Apollonia, which was built by Britain in 1770



Ecological Sensitivity Atlas Map 12



PHYSICAL ENVIRONMENT

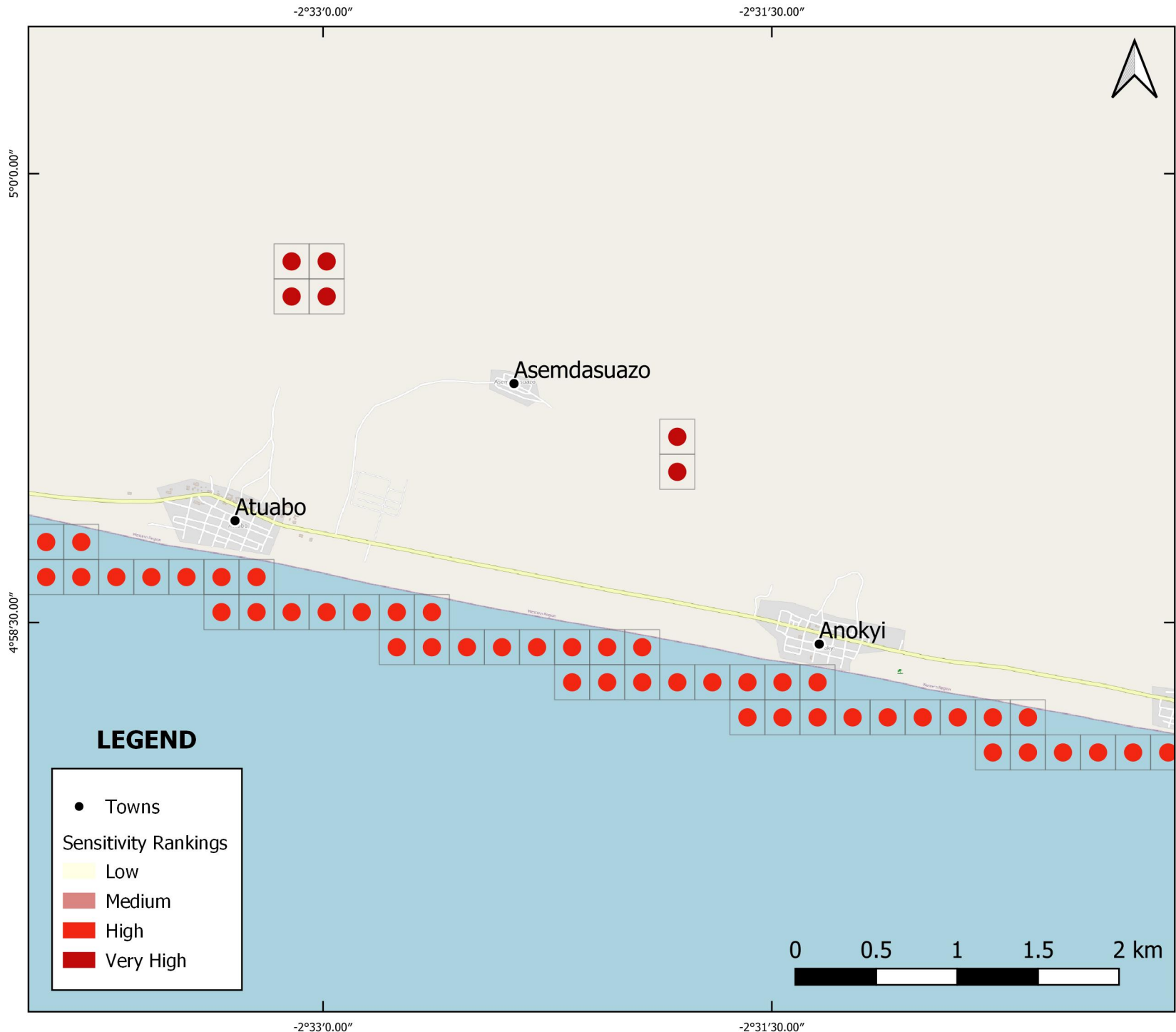
The beach is fine grained sand with low slope.

ECOLOGICAL ENVIRONMENT

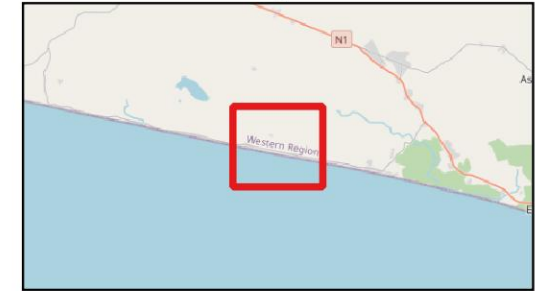
Sandy beaches generally have low species diversity.

Turtle nesting sites

There are turtle nesting sites in the area.



Socio-economic Sensitivity Atlas Map 12

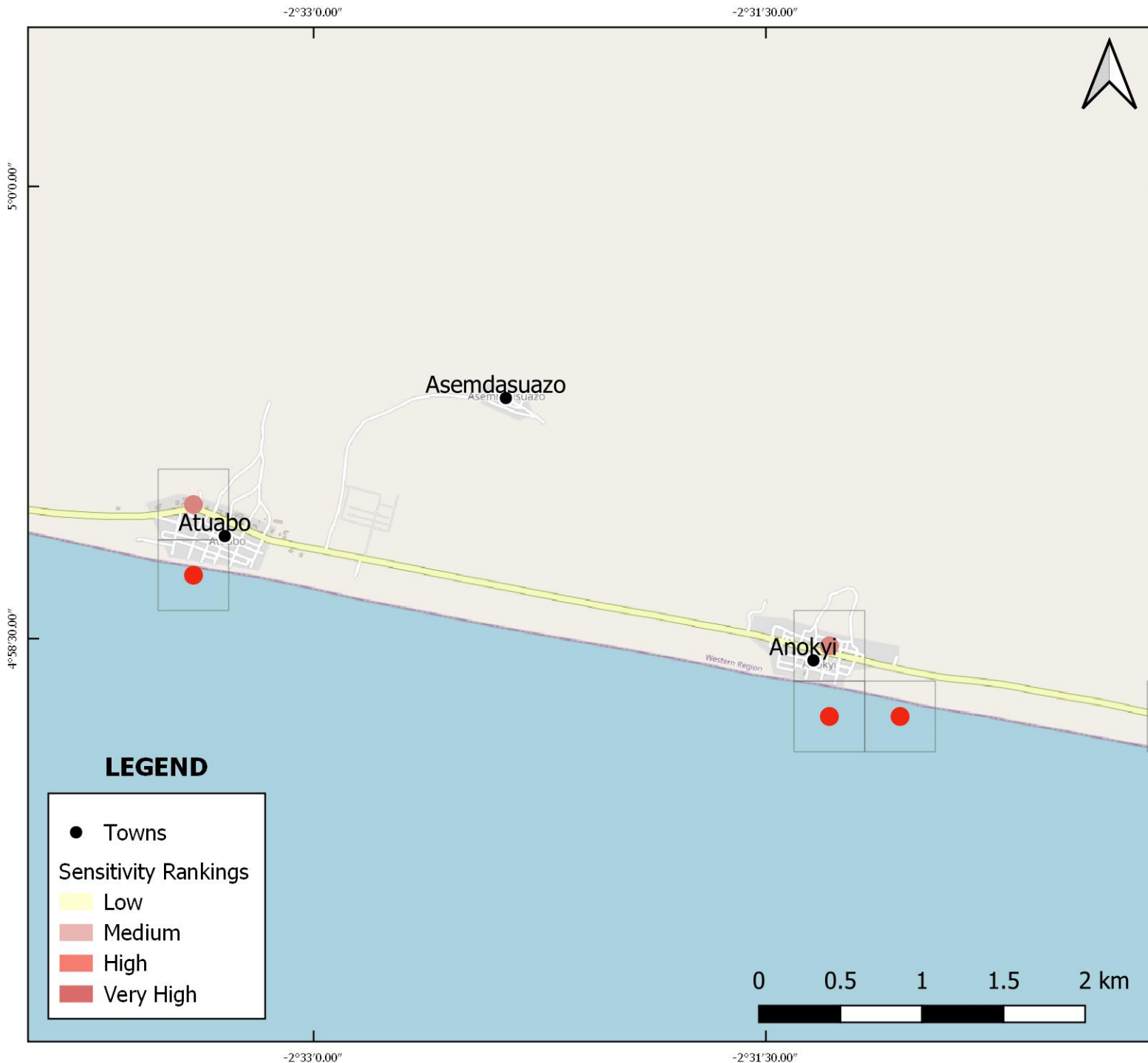


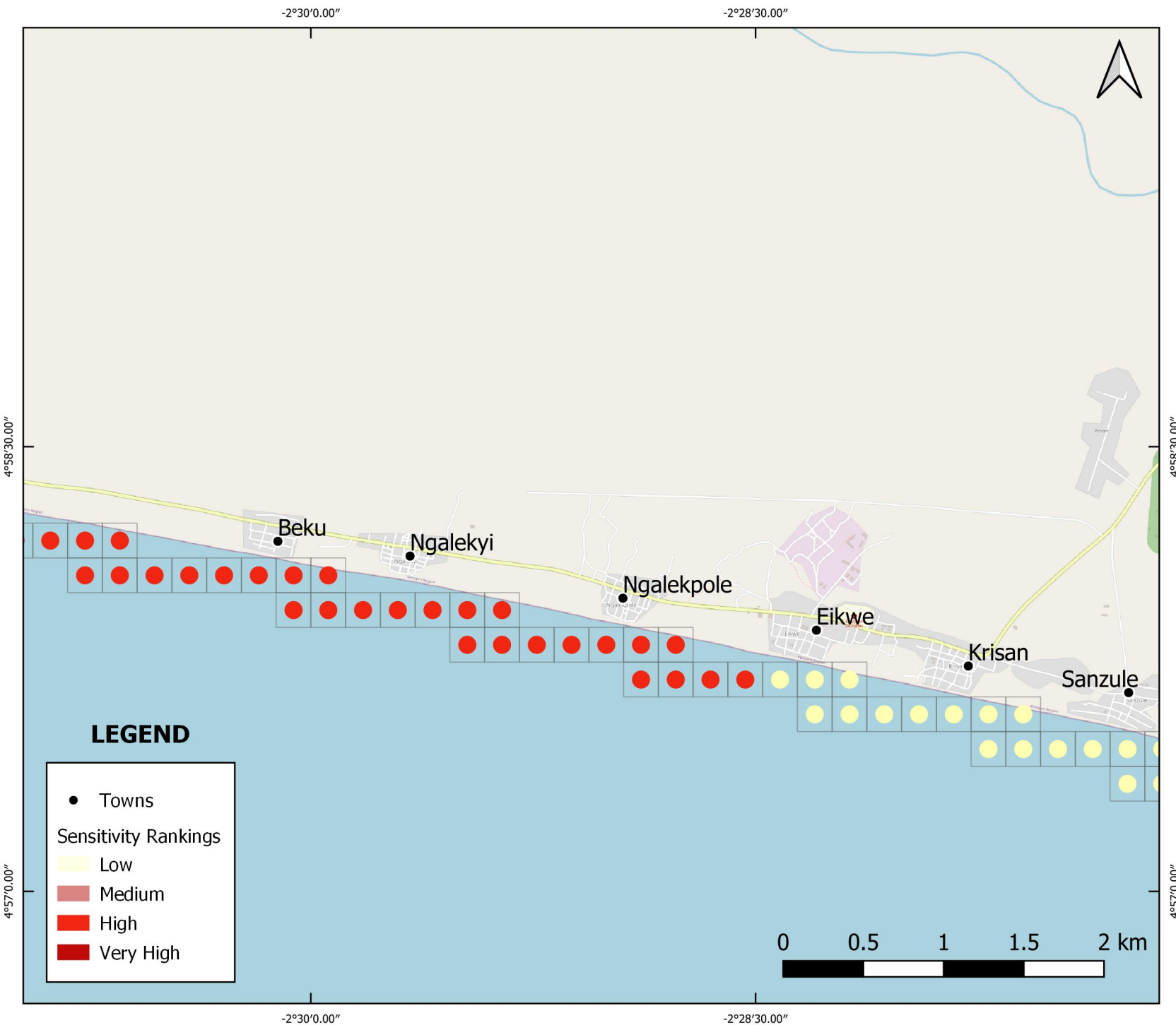
PHYSICAL ENVIRONMENT

The beach is fine grained sand with low slope.

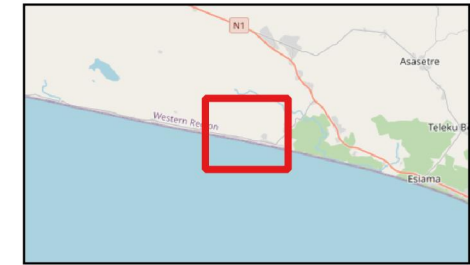
HUMAN ACTIVITY

Coastal Fishery: There are two fishing villages in the area Atuabo and Anokyi, each having one fish landing beach. The main fishing practice is beach seining.





**Ecological Sensitivity Atlas
Map 13**



PHYSICAL ENVIRONMENT

The beach is fine grained sand with low slope.

ECOLOGICAL ENVIRONMENT

Turtle nesting sites

There are turtle nesting sites in the area.



Socio-economic Sensitivity Atlas Map 13

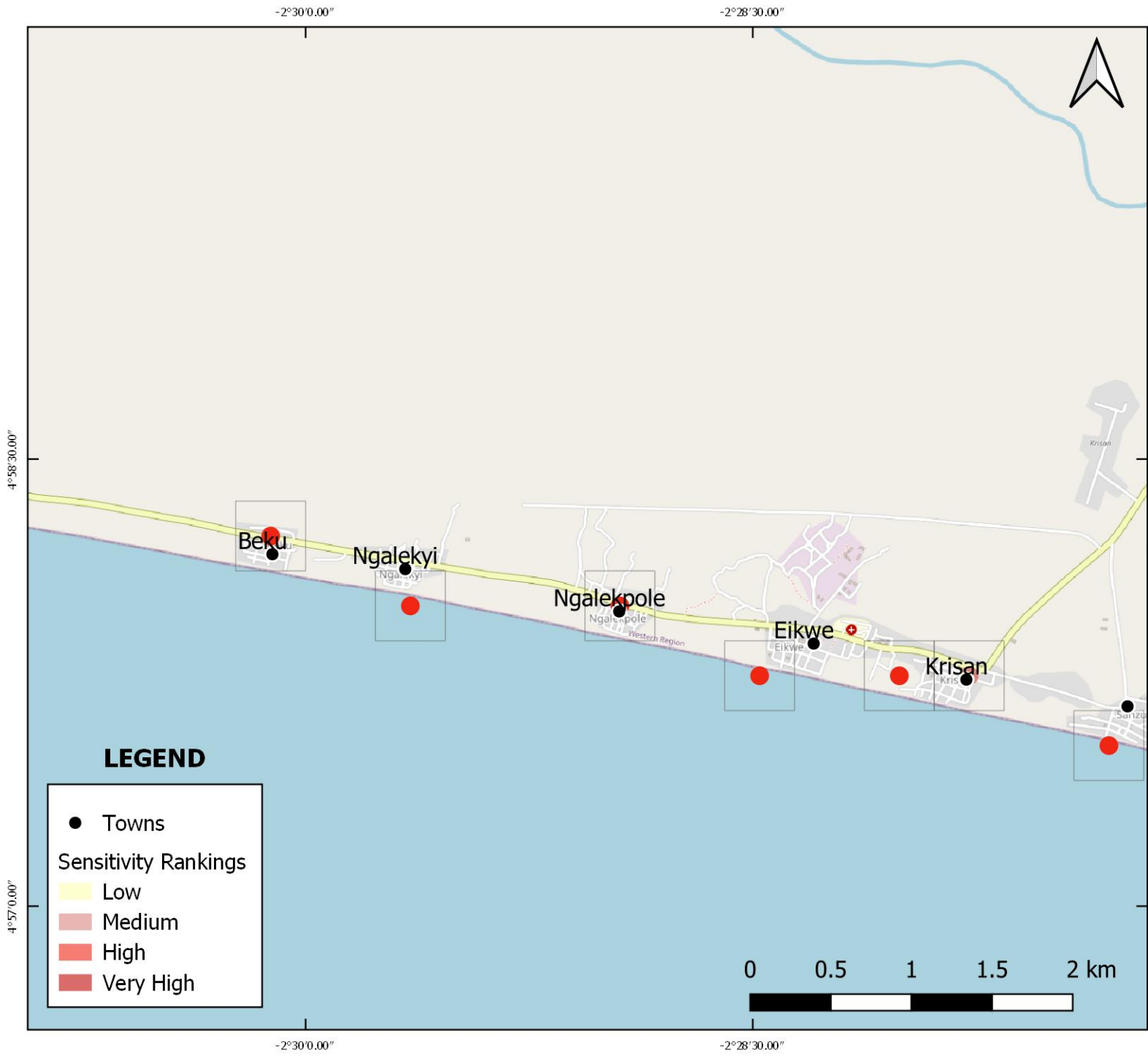


PHYSICAL ENVIRONMENT

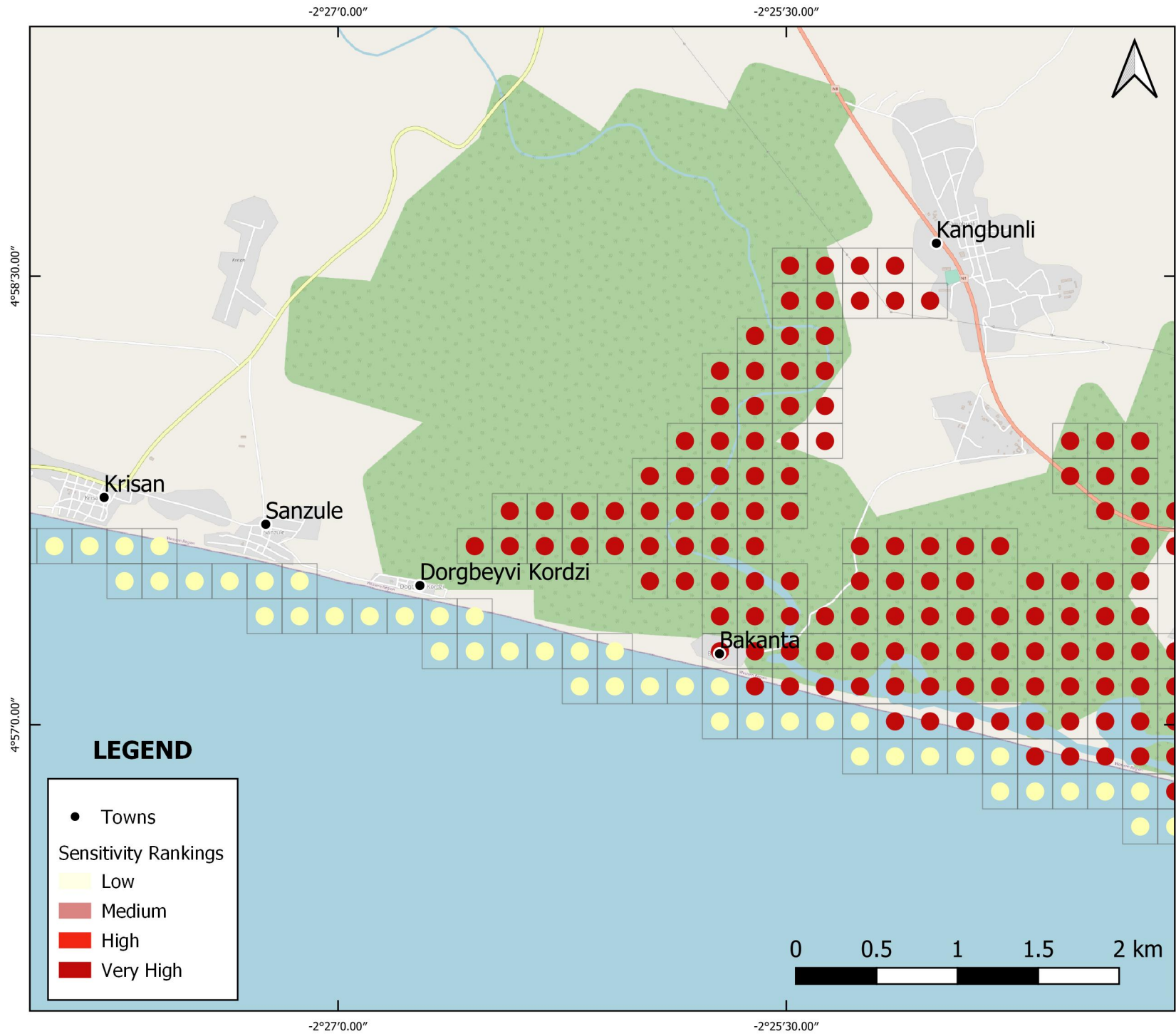
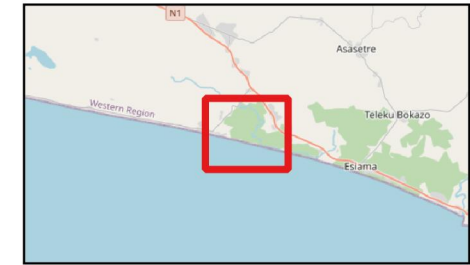
The beach is fine grained sand with low slope.

HUMAN ACTIVITY

Coastal Fishery: There are five fishing villages in the area Baku, Ngalechie, Ngalekpole, Eikwe and Krisan. Each town has one landing beach. At Baku and Eikwe the fishing method used is set nets whereas at Ngalechie, Ngalekpole and Krisan the main fishing method used is beach seining.



Ecological Sensitivity Atlas Map 14



PHYSICAL ENVIRONMENT

The beach is fine grained sand with low slope. There is a lagoon in the area, the Amanzule Lagoon. This lagoon is an open type with permanent connection to the sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Amanzule Lagoon.

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

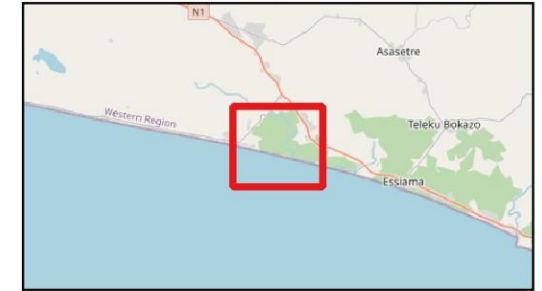
Vegetation: There are stands of mangroves in Amanzule lagoon.

Birds: The Amanzule Lagoon is an important feeding site for waterfowl, including: Common tern, Sandwich tern, Black Tern, Ringed plover, Grey plover, and Common sandpiper. Sanderling, Knot, Little stint, Curlew sandpiper, Marsh sandpiper, Greenshank, Black-winged stilt, Fulvous duck, White-faced tree duck.

Fish and crustacean: The lagoon is an important nursery area for fish and shrimps such as marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.* *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priophthalmus kaelruti*, freshwater species like *Oreochromis niloticus* and *Tilapia zillii* and marine species such as *Albula vulpes* and *Lutjanus fulgens*.

Socio-economic Sensitivity Atlas Map 14

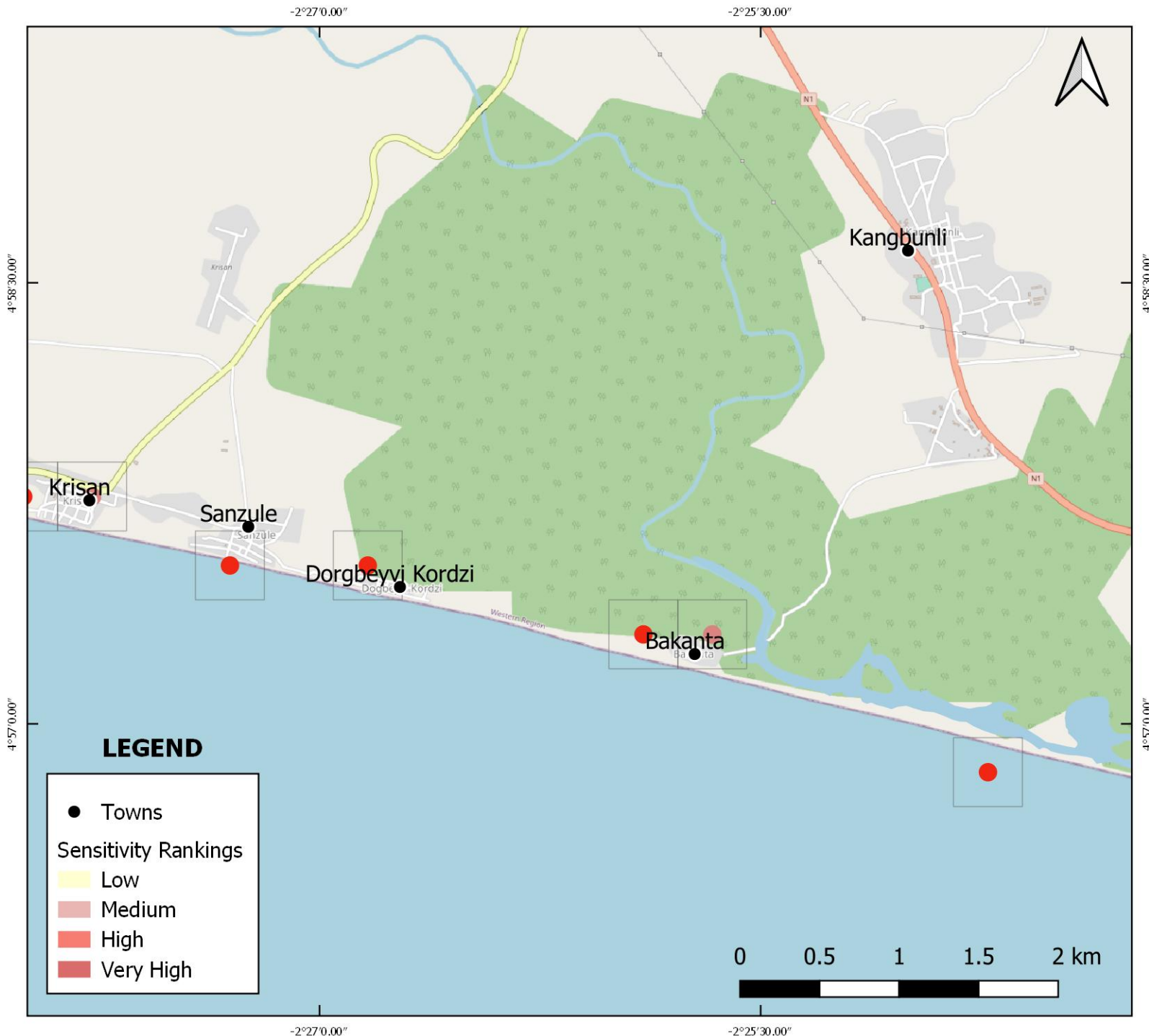


PHYSICAL ENVIRONMENT

The beach is fine grained sand with low slope. There is a lagoon in the area, the Amanzule Lagoon. This lagoon is an open type with permanent connection to the sea.

HUMAN ACTIVITY

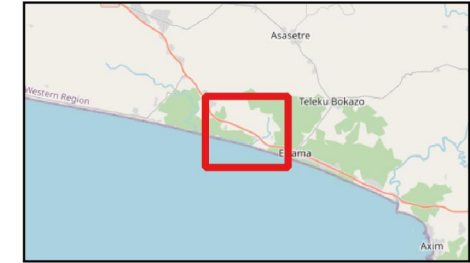
Coastal Fishery: There are two fishing villages in the area located at Sanzule and Bakanta, each having one landing beach. Beach seining is the main fishing method in these villages.



4°58'30.00"
4°57'0.00"



Ecological Sensitivity Atlas Map 15



PHYSICAL ENVIRONMENT

The beach is fine grained sand with low slope. The Amanzule Lagoon is situated in the area. This lagoon is an open type with permanent connection to the sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Amanzule Lagoon.

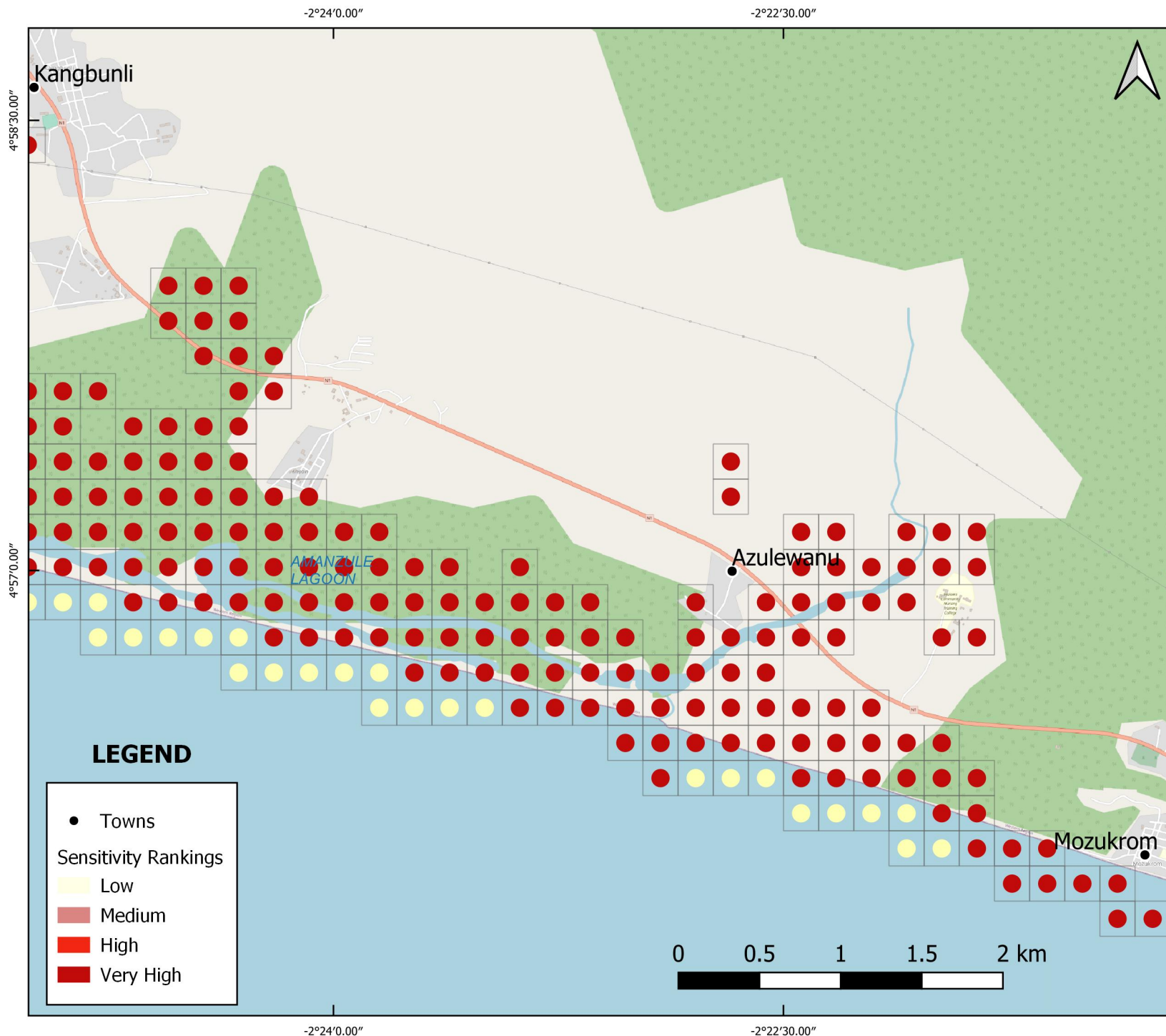
The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important Nursery areas for juveniles of marine fish and shrimps.

Vegetation: There are stands of mangroves in Amanzule lagoon.

Birds: The Amanzule Lagoon is an important feeding site for water fowl, including: Common tern, Sandwich Tern, Black Tern, Ringed plover, Grey plover, and Common sandpiper. Sanderling, Knot, Little stint, Curlew sandpiper, Marsh sandpiper, Greenshank, Black-winged stilt, Fulvous duck, White-faced tree duck.

Fish and crustaceans: The lagoon is an important nursery area for fish and shrimps such as marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.* and *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

The fish fauna include true lagoon species like the tilapia *Sarotherodon melanotheron* and the mudskipper *Priopthalmus kaehruti*, freshwater species such as *Oreochromis niloticus* and *Tilapia zillii* and marine species like *Albula vulpes* and *Lutjanus fulgens*.



Socio-economic Sensitivity Atlas Map 15



PHYSICAL ENVIRONMENT

The beach is fine grained sand with low slope. The Amanzule Lagoon is situated in the area. This lagoon is an open type with permanent connection to the sea.

HUMAN ACTIVITY

Coastal Fishery: There are two fishing villages in the area, Ampain and Azulenloanu. The villages have one landing beach each.



LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development programme (OfD). All Rights Reserved.

Ecological Sensitivity Atlas Map 16

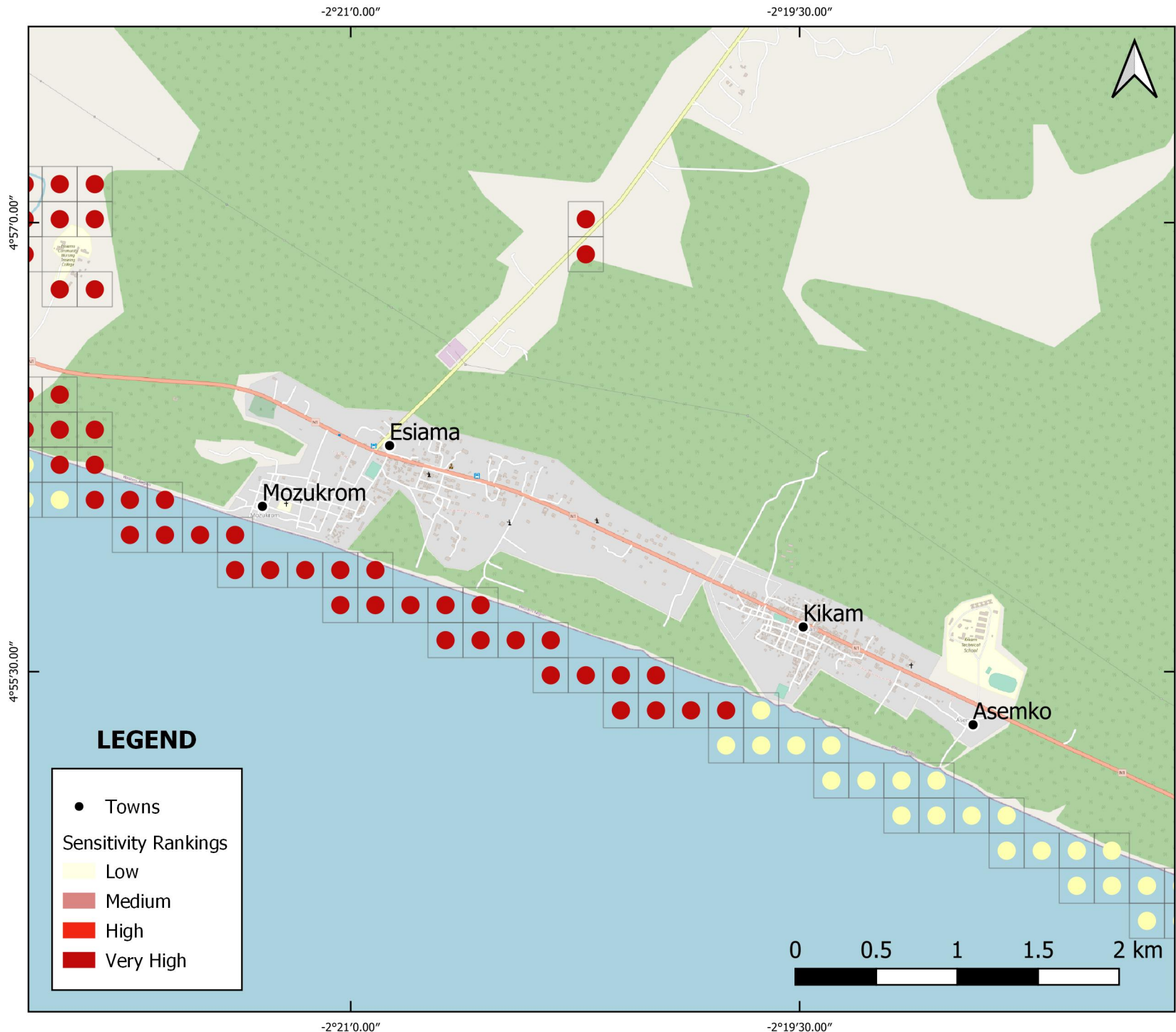


PHYSICAL ENVIRONMENT

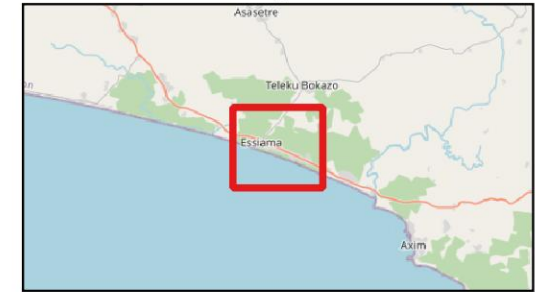
The beach is fine grained sand with low slope.

ECOLOGICAL ENVIRONMENT

Birds: The Essiama beach is very important for shorebirds. More than 10,000 birds have been registered here.



**Socio-economic Sensitivity Atlas
Map 16**

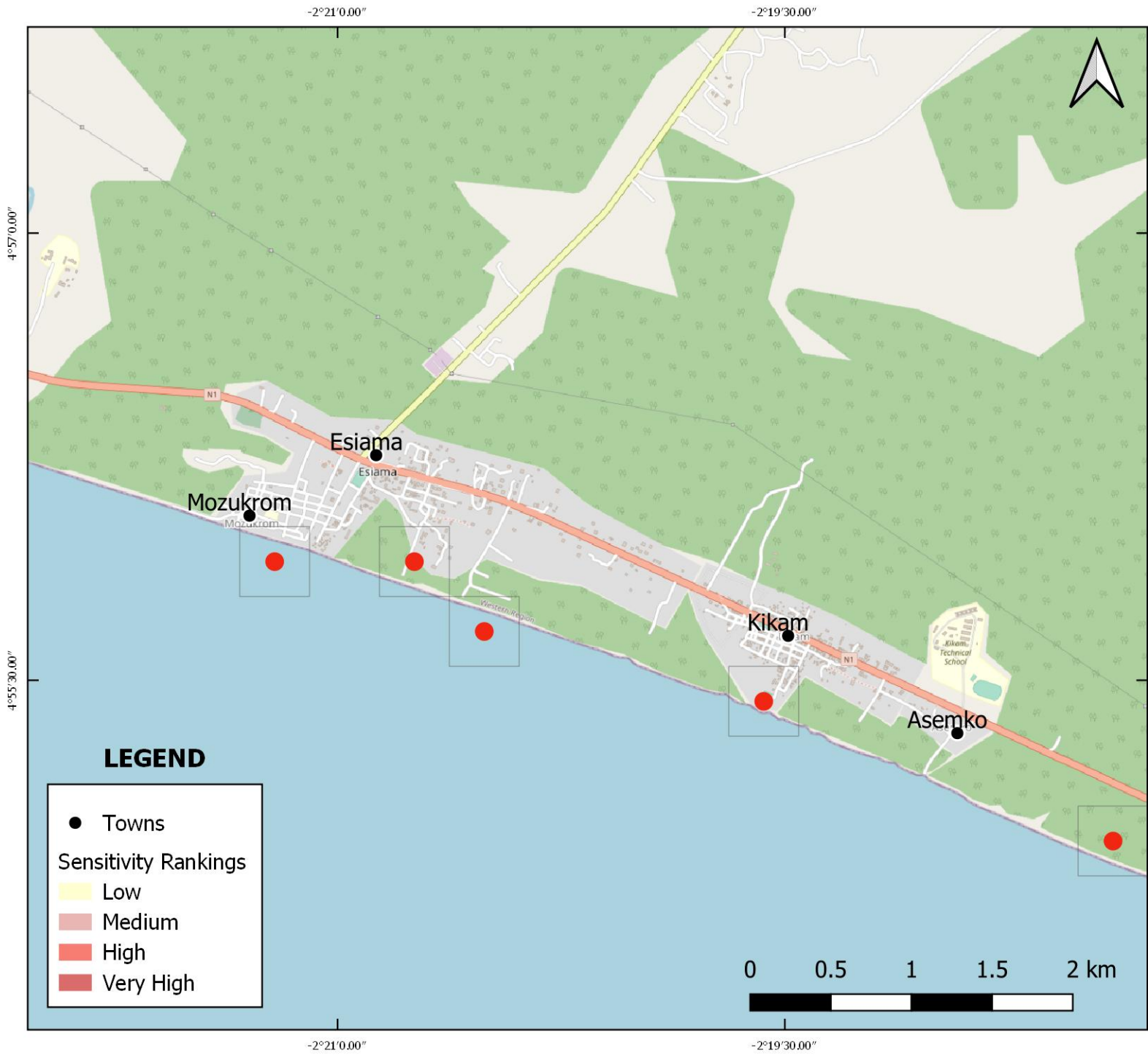


PHYSICAL ENVIRONMENT

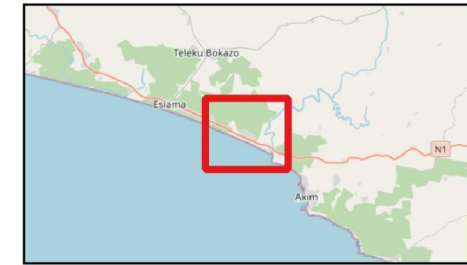
The beach is fine grained sand with low slope.

HUMAN ACTIVITY

Coastal Fishery: There are two fishing villages in the area, Essiama and Kikam. Essiama has two landing beaches one at Essiama Kpooley and one at Mozukulo. The main fishing methods used are beach seining and set nets. Kikam has one landing beach and the main fishing method is beach seining.



Ecological Sensitivity Atlas Map 17



PHYSICAL ENVIRONMENT

The beach is fine grained sand with low slope. The Ankobra (Ankwao) estuary and marshland form an extensive covering of about 1,875 km² (187,500 ha) There are rocks with abundant crevices (tidal pools) south and east of the mouth of Ankobra.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteris delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

On rocky flats with abundant crevices there are tide pools, where pools of water collect in hollows and depressions of the rocks at low tide. The tide pools house a rich vegetation of algae and a diverse fauna of crabs, sea urchins and fish.

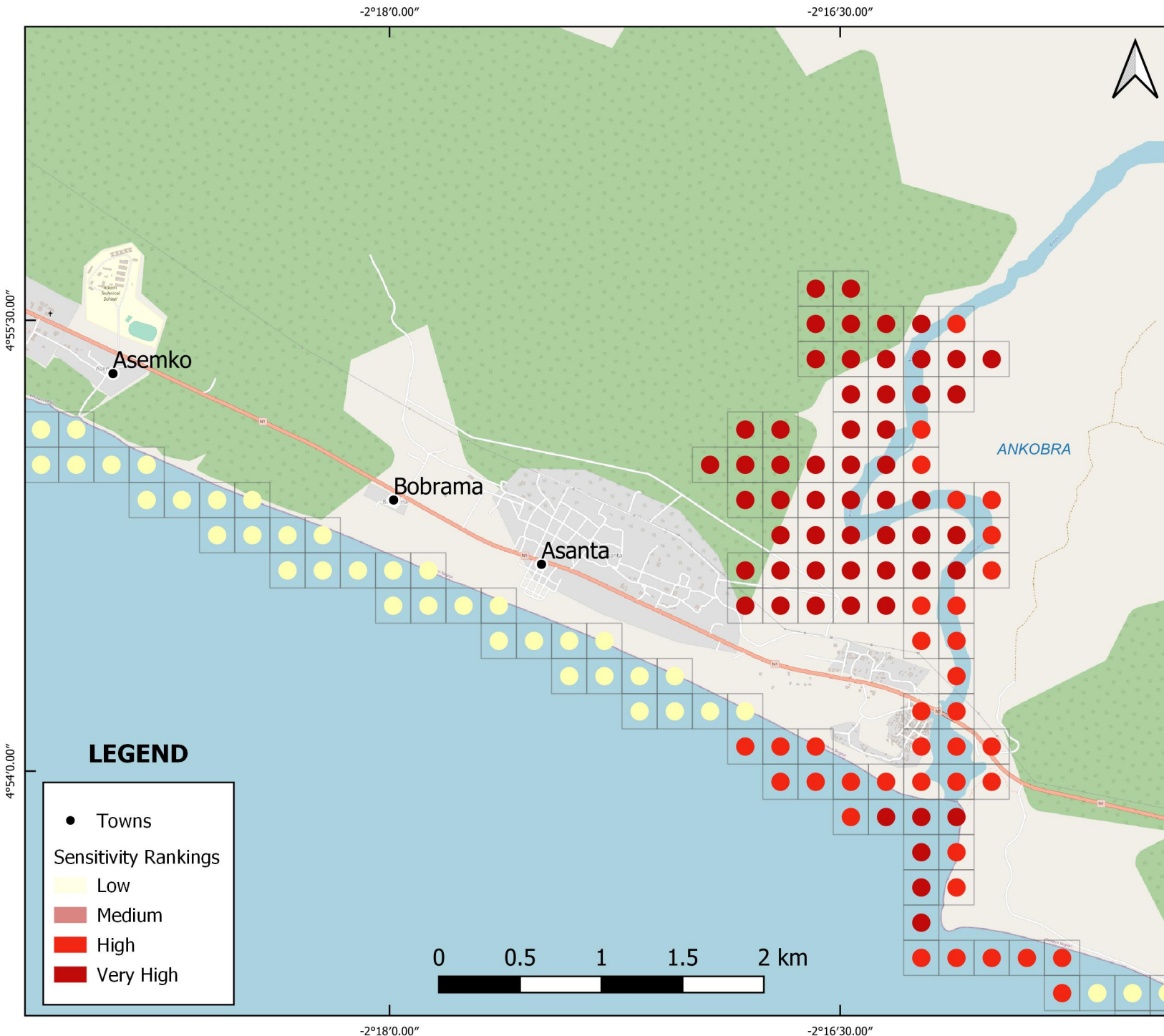
Ankobra Estuary

Vegetation: There are mangroves in Ankobra estuary.

Birds: The Ankobra estuary is an important feeding site for waterfowl, including the following species: Fulvous tree duck, White-faced tree duck, Ringed plover, Grey plover, Redshank, Sanderling, Knot, Little stint, Curlew sandpiper, Red heron, Little egret, Great white egret.

Fish and crustaceans: The Ankobra Estuary is an important nursery area for fish and shrimps.

Estuarine fish include the tarpon *Megalops*, the shad *Ethmalosa dorsalis*, the long-finned herring *Ilisha melanota*, the ten-pounder *Elops lacerta*, the barracuda *Sphyrna guachancho*, the tongue sole *Cynoglossus senegalensis*, the burro fish *Pomadourus jubelimi*, the burrito *Brachydeuterus auritus* and the threadfin *Pentanemus quinquarius*.

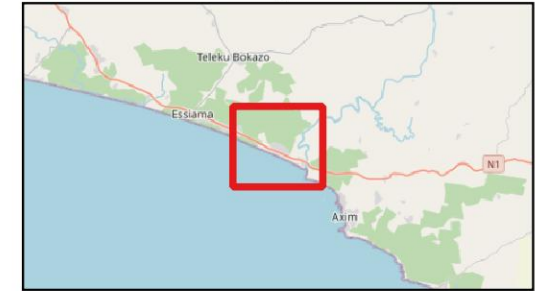


LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



Socio-economic Sensitivity Atlas Map 17



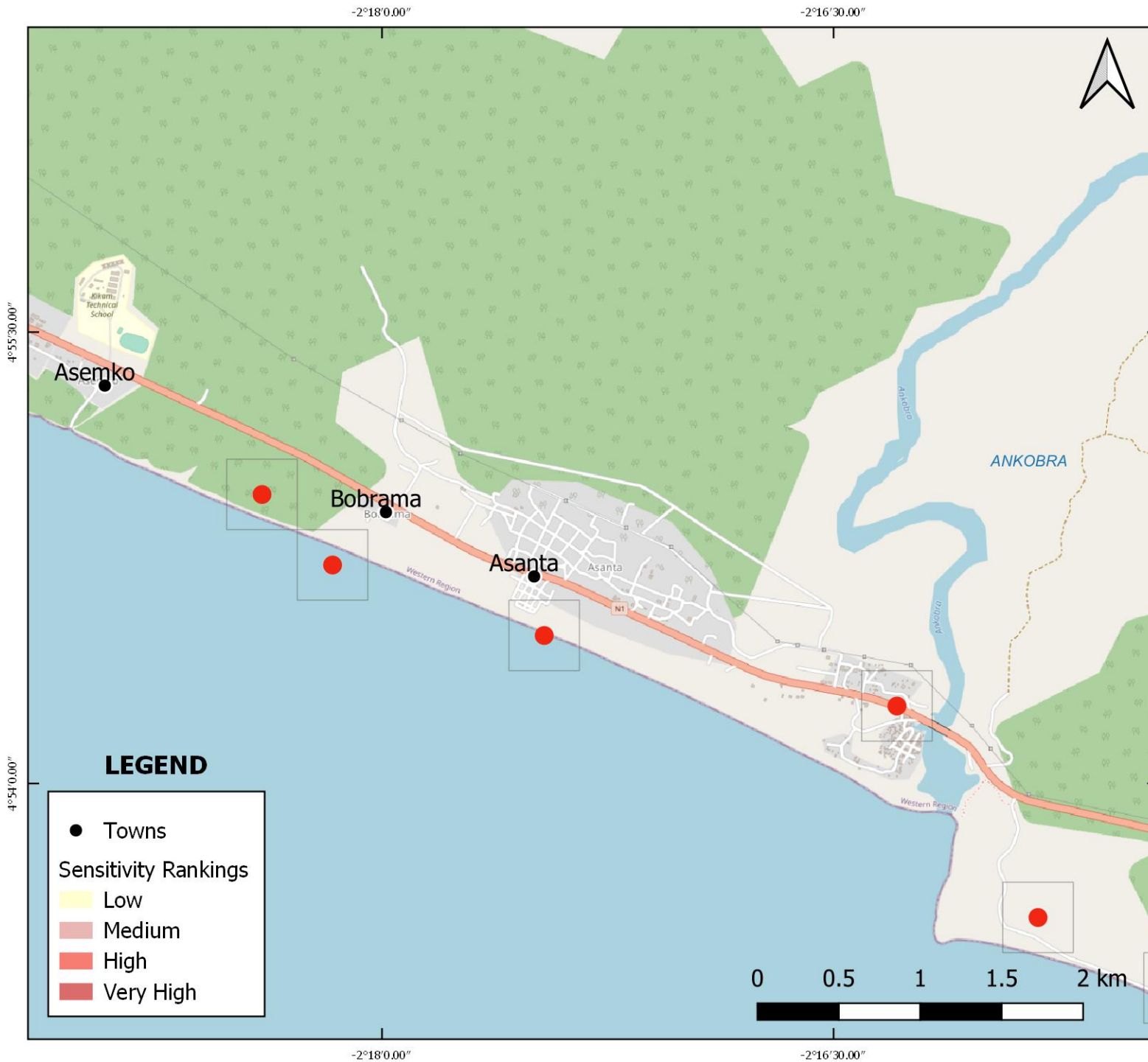
PHYSICAL ENVIRONMENT

The beach is fine grained sand with low slope. The Ankobra (Ankwao) estuary and marshland form an extensive covering of about 1,875 km² (187,500 ha) There are rocks with abundant crevices (tidal pools) south and east of the mouth of Ankobra.

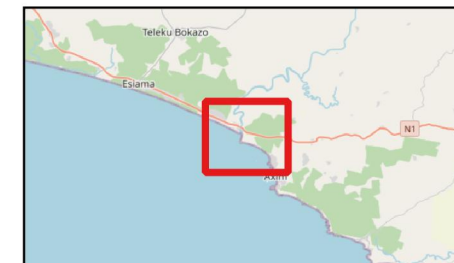
HUMAN ACTIVITY

Coastal Fishery: There are two fishing villages in the area Asanta and Sawoma. Each village has one landing beach and the main fishing method used is beach seining.

Recreation/tourism: There is a Historical Monument at Sawoma.



Ecological Sensitivity Atlas Map 18



PHYSICAL ENVIRONMENT

The beach is predominantly fine grained sand with low slope. There are exposed productive rocks with abundant crevices (tidal pools) south of the mouth of Ankobra and at Axim. The Ankobra (Ankwao) estuary and marshland form an extensive covering of about 1,875 km² (187,500 ha).

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity. The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dicthyoptera delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnium sp.*

On rocky flats with abundant crevices there are tide pools where pools of water collect in hollows and depressions of the rocks at low tide. The tide pools house a rich vegetation of algae and a diverse fauna of crabs, sea urchins and fish.

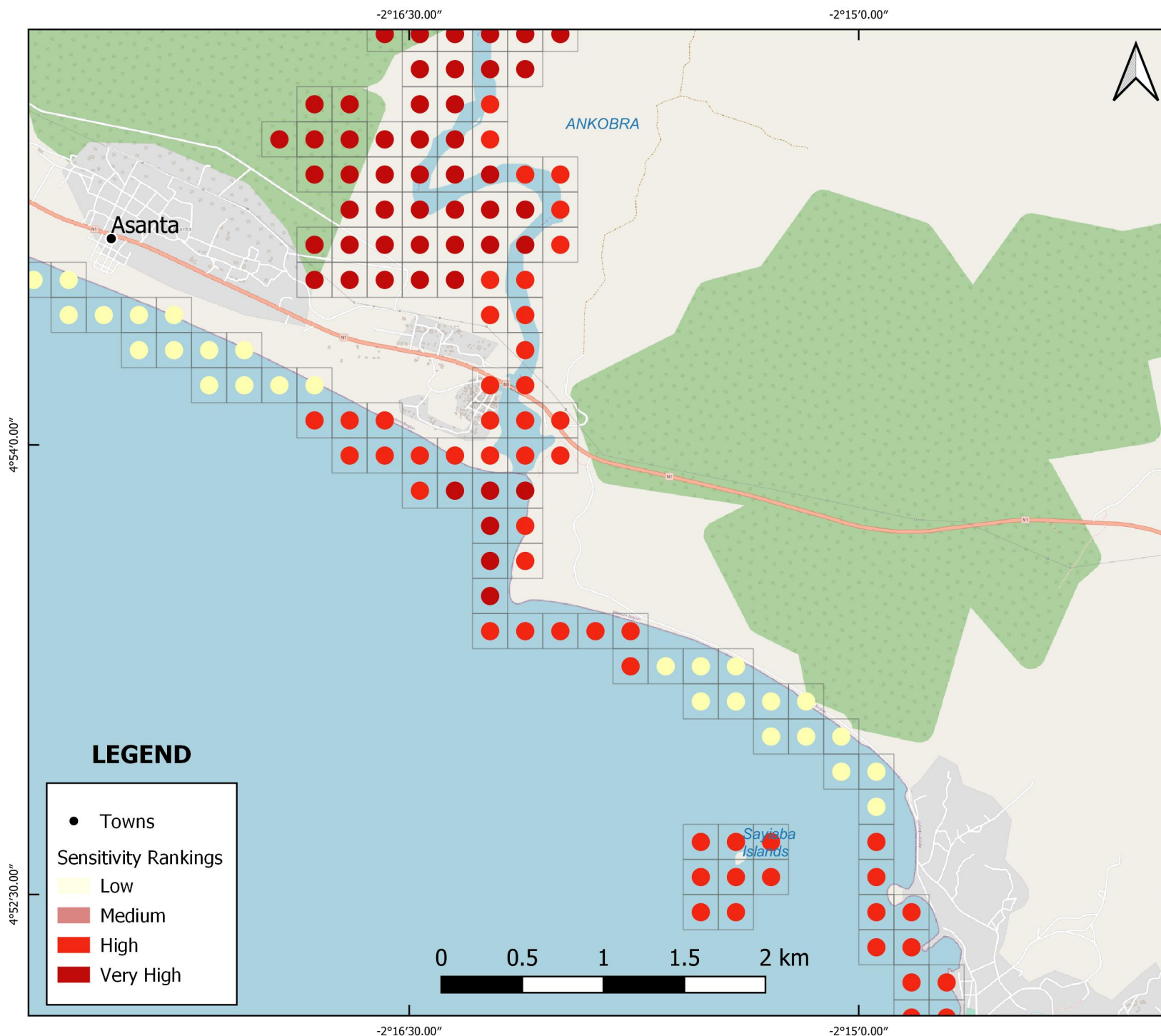
Intertidal rocks covered by abundant algal growth, which are exposed at low tide, is encountered east of the rocky flats and around Sayika Islands. This habitat is very important as a nursery area for fish.

Ankobra Estuary
Vegetation: There are mangroves in Ankobra estuary.

Birds: The Ankobra Estuary is an important feeding site for waterfowl, including Fulvous tree duck, White-faced tree duck, Ringed plover, Grey plover, Redshank, Sanderling, Knot, Little stint, Curlew sandpiper, Red heron, Little egret and Great white egret.

Fish and crustaceans: The Ankobra Estuary is an important nursery area for fish and shrimps.

Estuarine fish include the tarpon *Megalops*, the shad *Ethmalosa dorsalis*, the long-finned herring *Ilisha melanota*, the ten-pounder *Elops lacerta*, the barracuda *Sphyrna guachancho*, the tongue sole *Cynoglossus senegalensis*, the burro *Pomadasys jubelini*, the burrito *Brachydeuterus auritus* and the threadfin *Pentanemus quinquarius*.

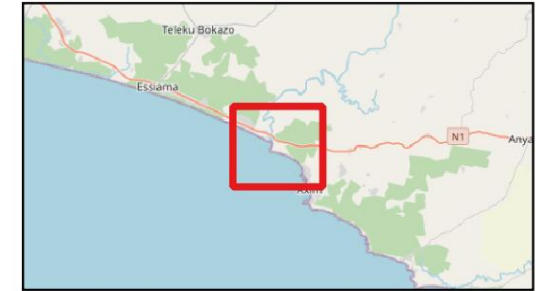


LEGEND

- Towns
- Sensitivity Rankings**
- Low
- Medium
- High
- Very High



Socio-economic Sensitivity Atlas Map 18



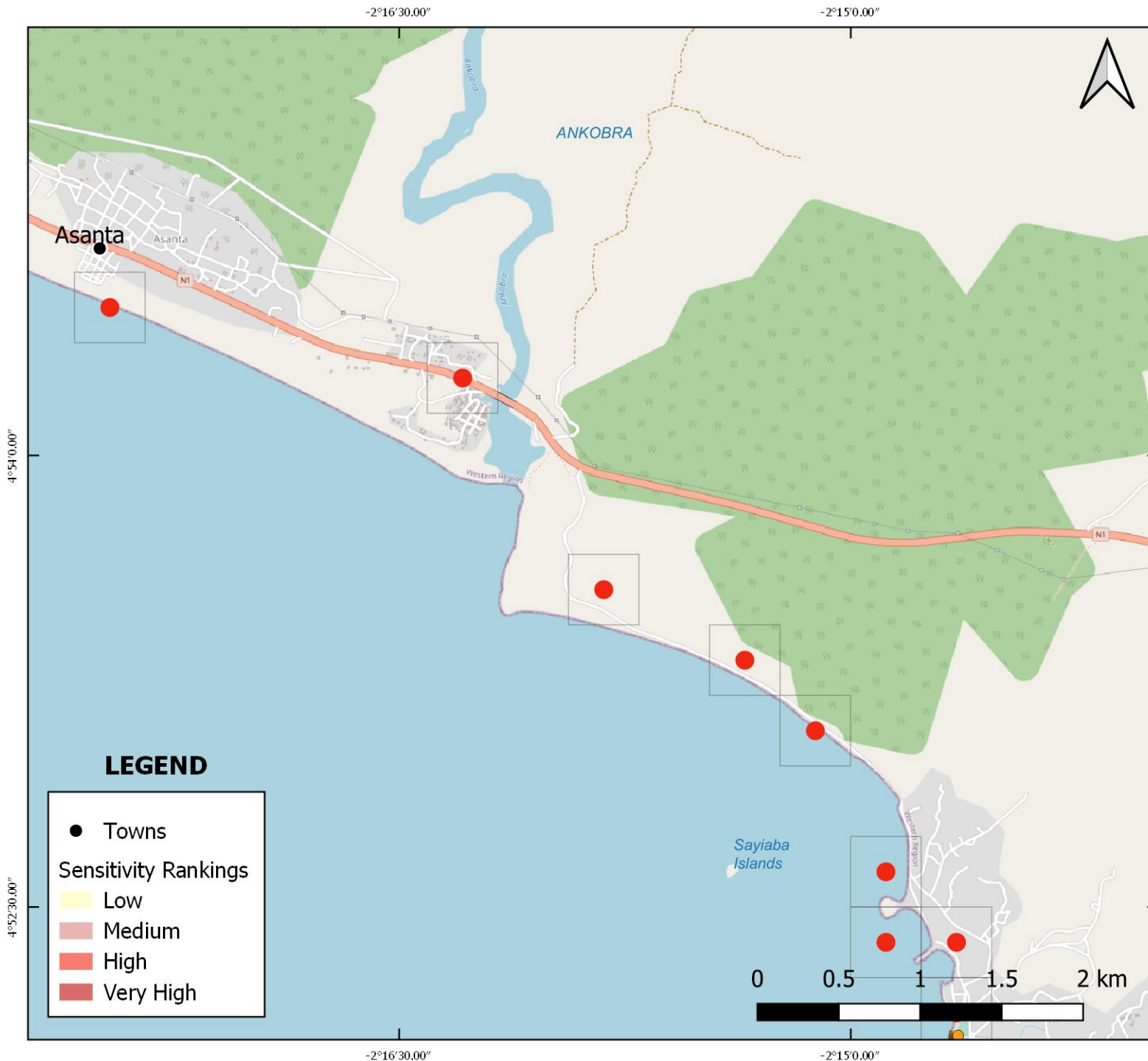
PHYSICAL ENVIRONMENT

The beach is predominantly fine grained sand with low slope. There are exposed productive rocks with abundant crevices (tidal pools) south of the mouth of Ankobra and at Axim. The Ankobra (Ankwao) estuary and marshland form an extensive covering of about 1,875 km² (187,500 ha).

HUMAN ACTIVITY

Coastal Fishery: There are fish landing beaches at Sawoma and Ahyenzezo. Ahyenzezo has one landing beach and the main fishing method is purse seining.

Recreation/tourism: There is a historical monument at Sawoma.



Ecological Sensitivity Atlas Map 19



PHYSICAL ENVIRONMENT

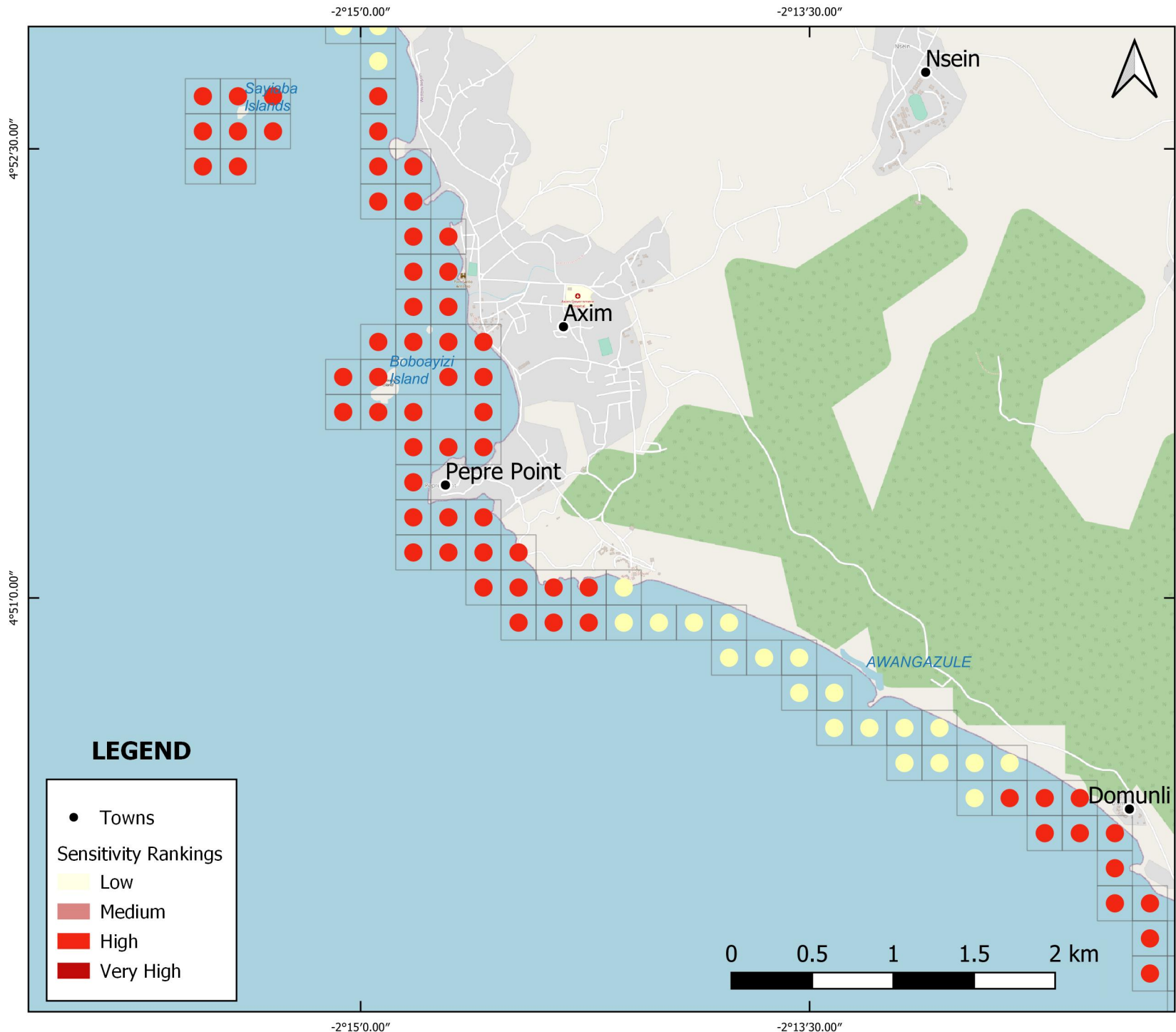
The beach is rocky headlands and sandy beaches. The rocks are flats with abundant crevices (tidal pools). There is a small lagoon in the area, the Awangazule lagoon. The lagoon is closed without connection to the sea and will therefore not be affected by an oil spill at sea.

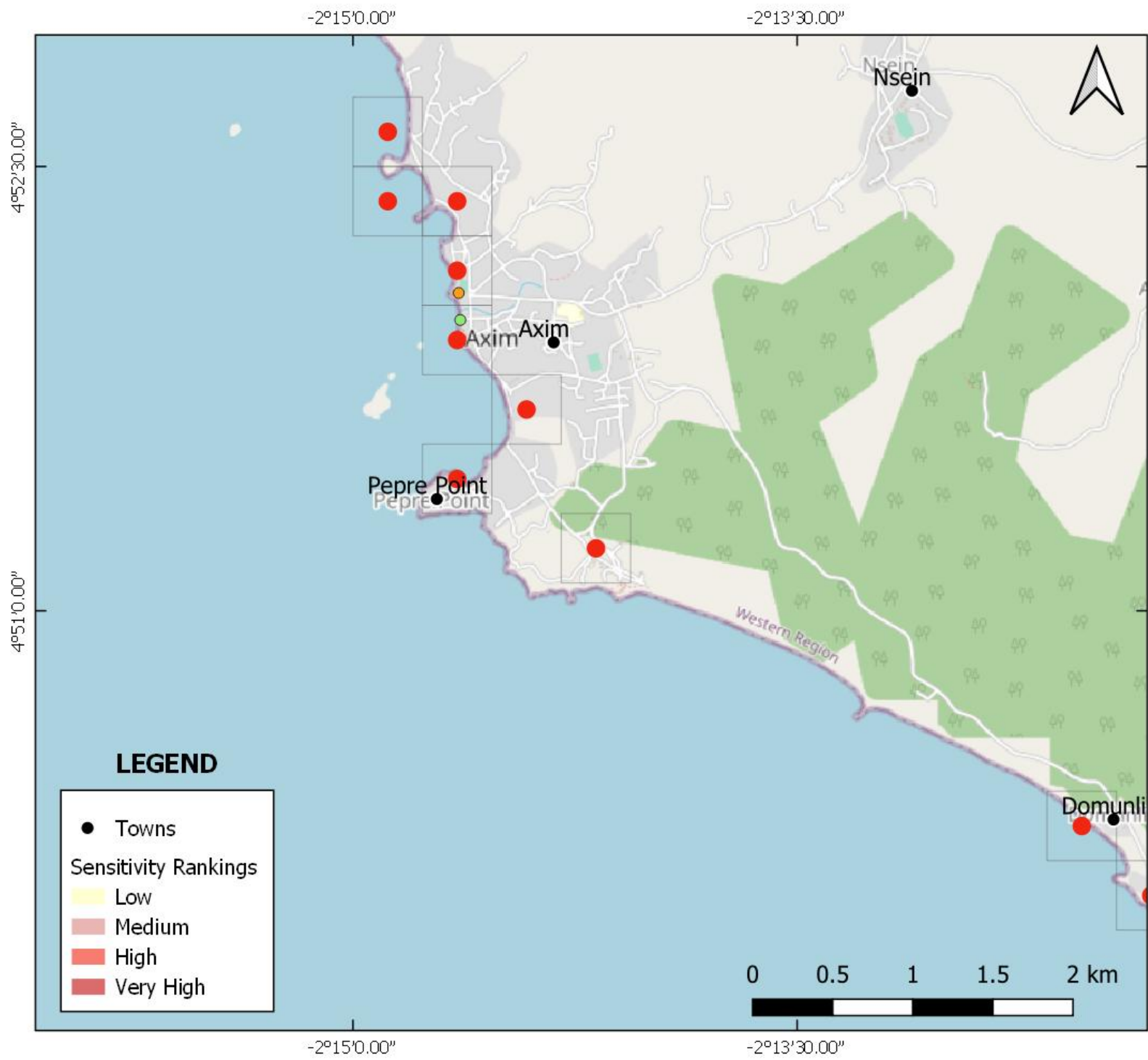
ECOLOGICAL ENVIRONMENT

The rocks are substrate for a wide variety of species of macroalgae and barnacles, and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopterus delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

On rocky flats with abundant crevices there are tide pools where pools of water collect in hollows and depressions of the rocks at low tide. The tide pools house a rich vegetation of algae and a diverse fauna of crabs, sea urchins and fish.

Intertidal rocks covered by abundant algal growth, which are exposed at low tide, are encountered around Sayika Islands. This habitat is very important as a nursery area for fish.





Socio-economic Sensitivity Atlas - Map 19



PHYSICAL ENVIRONMENT

The beach is rocky headlands and sandy beaches. The rocks are flats with abundant crevices (tidal pools). There is a small lagoon in the area, the Awangazule lagoon. The lagoon is closed without connection to the sea and will therefore not be affected by an oil spill at sea.

HUMAN ACTIVITY

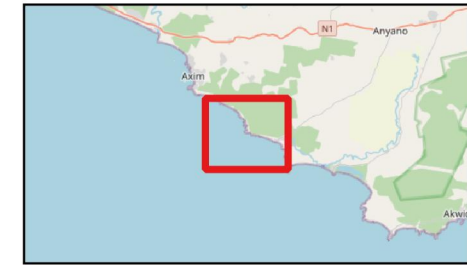
Coastal Fishery: There are fish landing sites at Axim. Upper Axim has 6 landing beaches located at Solo, Amanfokumanu, Brawere, Anto Brawere, Akyinim and Awuna-Krom. The main fishing method used is set nets. Lower Axim has 6 landing beaches located at Sika Santewase, Sika Abweado, Antoapewusika, Fanti-Line Boat-Ase and Sukpom. Purse seines, set nets and ali nets are the main fishing method used.

Recreation/tourism: There is a historical monument at Axim. It is Fort São Antonio, built by the Portuguese around 1515.



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development programme (O4D). All Rights Reserved.

Ecological Sensitivity Atlas Map 20



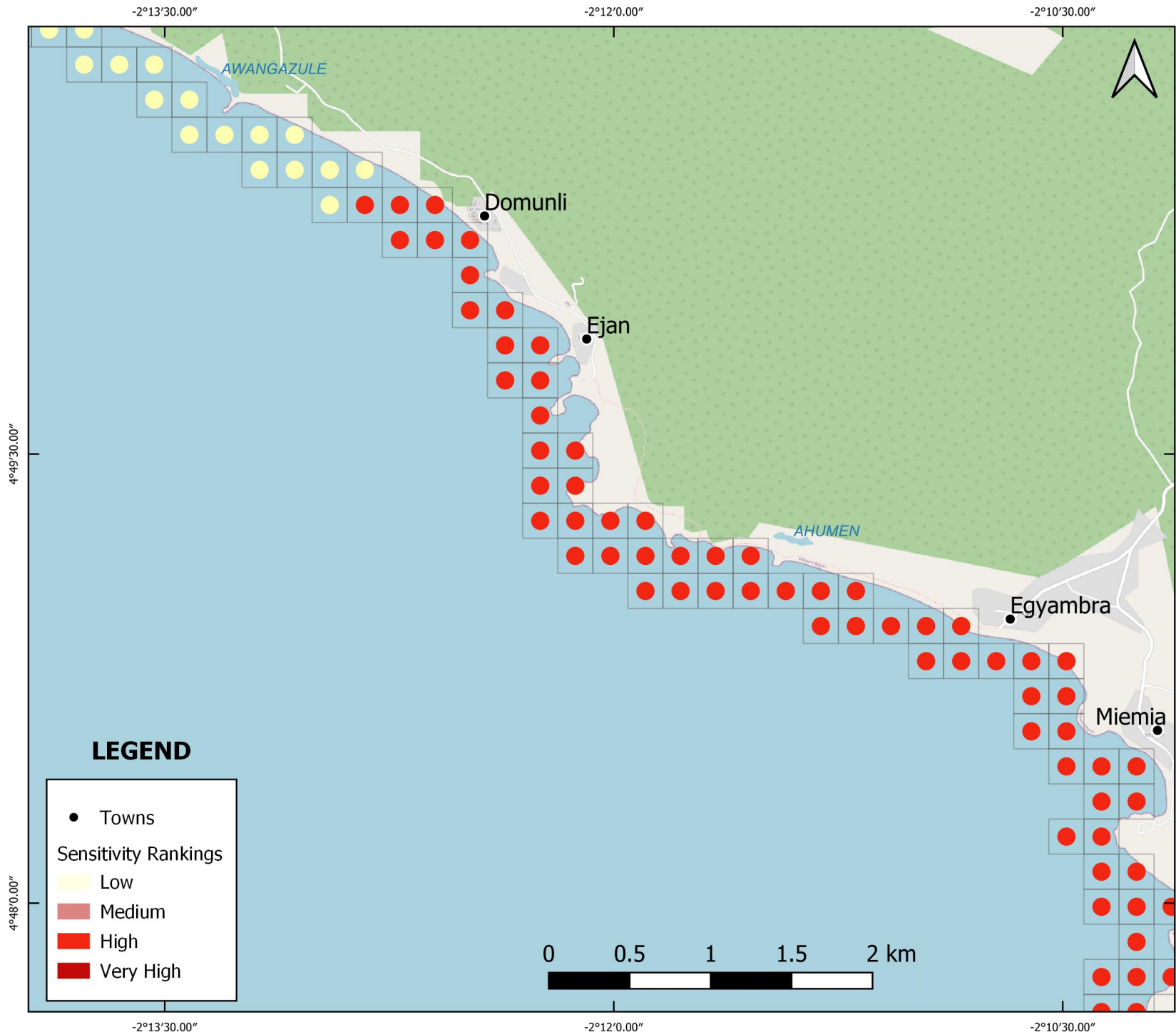
PHYSICAL ENVIRONMENT

The coastline is sandy beach in the northernmost part of the area. The rest of the coastline is rock flats with abundant crevices (tidal pools). There is a small lagoon in the area, the Ahumen lagoon. The lagoon is closed without connection to the sea and is surrounded by marshland. The lagoon will not be affected by an oil spill at sea.

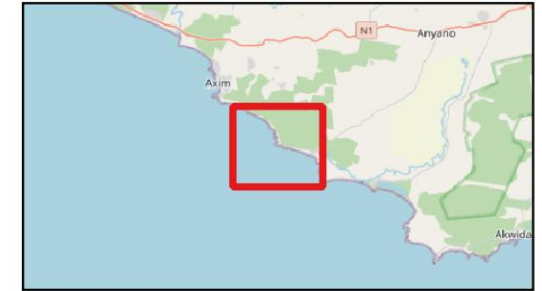
ECOLOGICAL ENVIRONMENT

The rocks are substrate for a wide variety of species of macroalgae and barnacles, and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteris delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

On rocky flats with abundant crevices there are tide pools where pools of water collect in hollows and depressions of the rocks at low tide. The tide pools house a rich vegetation of algae and a diverse fauna of crabs, sea urchins and fish.



Socio-economic Sensitivity Atlas Map 20



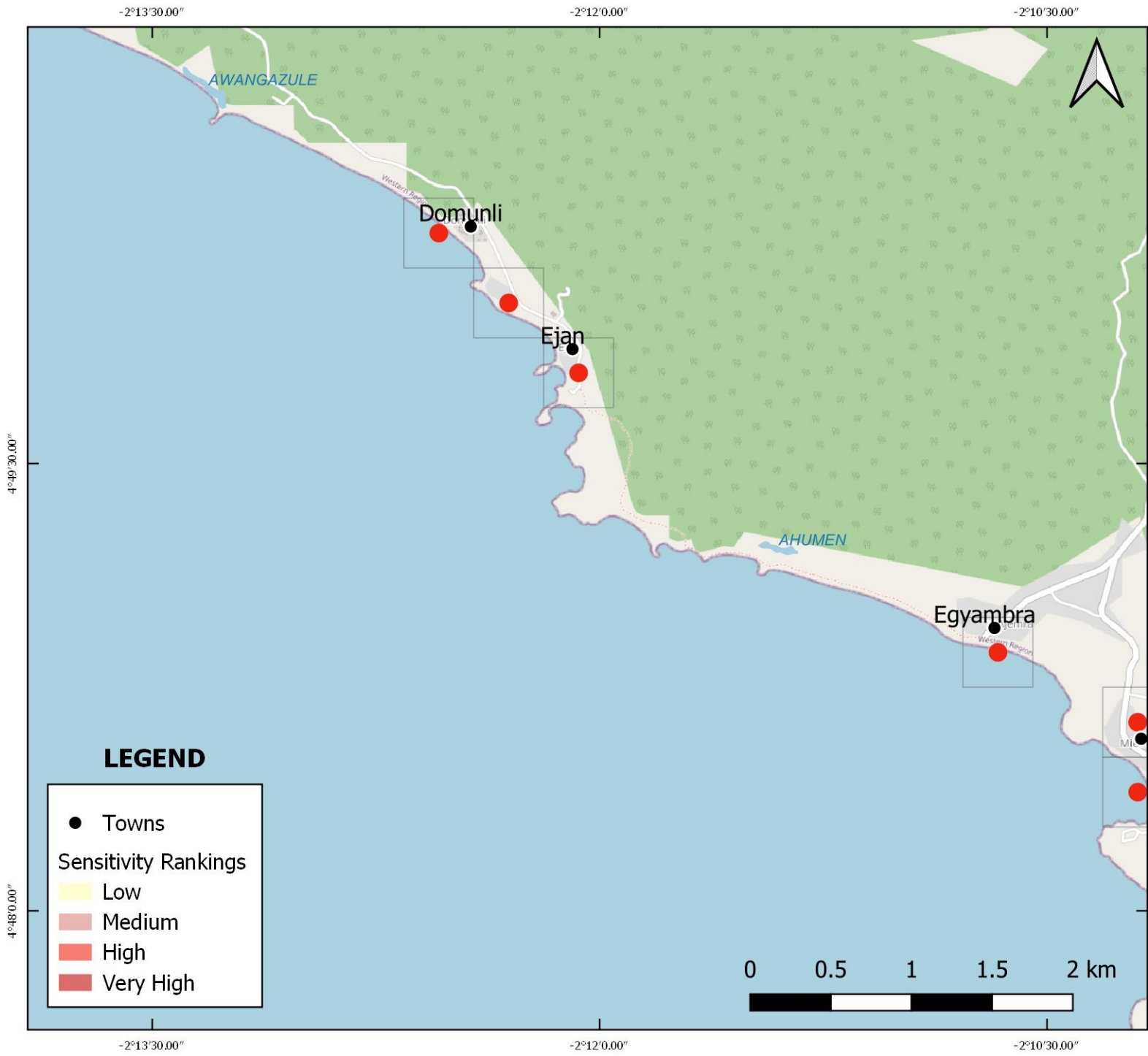
PHYSICAL ENVIRONMENT

The coastline is sandy beach in the northernmost part of the area. The rest of the coastline is rock flats with abundant crevices (tidal pools). There is a small lagoon in the area, the Ahumen lagoon. The lagoon is closed without connection to the sea and is surrounded by marshland. The lagoon will not be affected by an oil spill at sea.

HUMAN ACTIVITY

Coastal Fishery: There are four fishing villages in the area Domunli, Nkubem, Egan and Egyembra. Each village has one landing beach. The dominant fishing methods used are set nets and ali nets.

Recreation/tourism: There is a public beach at Egyembra.



Ecological Sensitivity Atlas Map 21



PHYSICAL ENVIRONMENT

Most of the coastline is sandy beach with coarse sand and moderate slope. There are two rocky headlands with exposed rocks of low to moderate slope. The Kpani-Nyila Estuary has its outlet in the area. The estuary is fed by an extensive marshland covering about 287 km² (28,700 ha).

ECOLOGICAL ENVIRONMENT

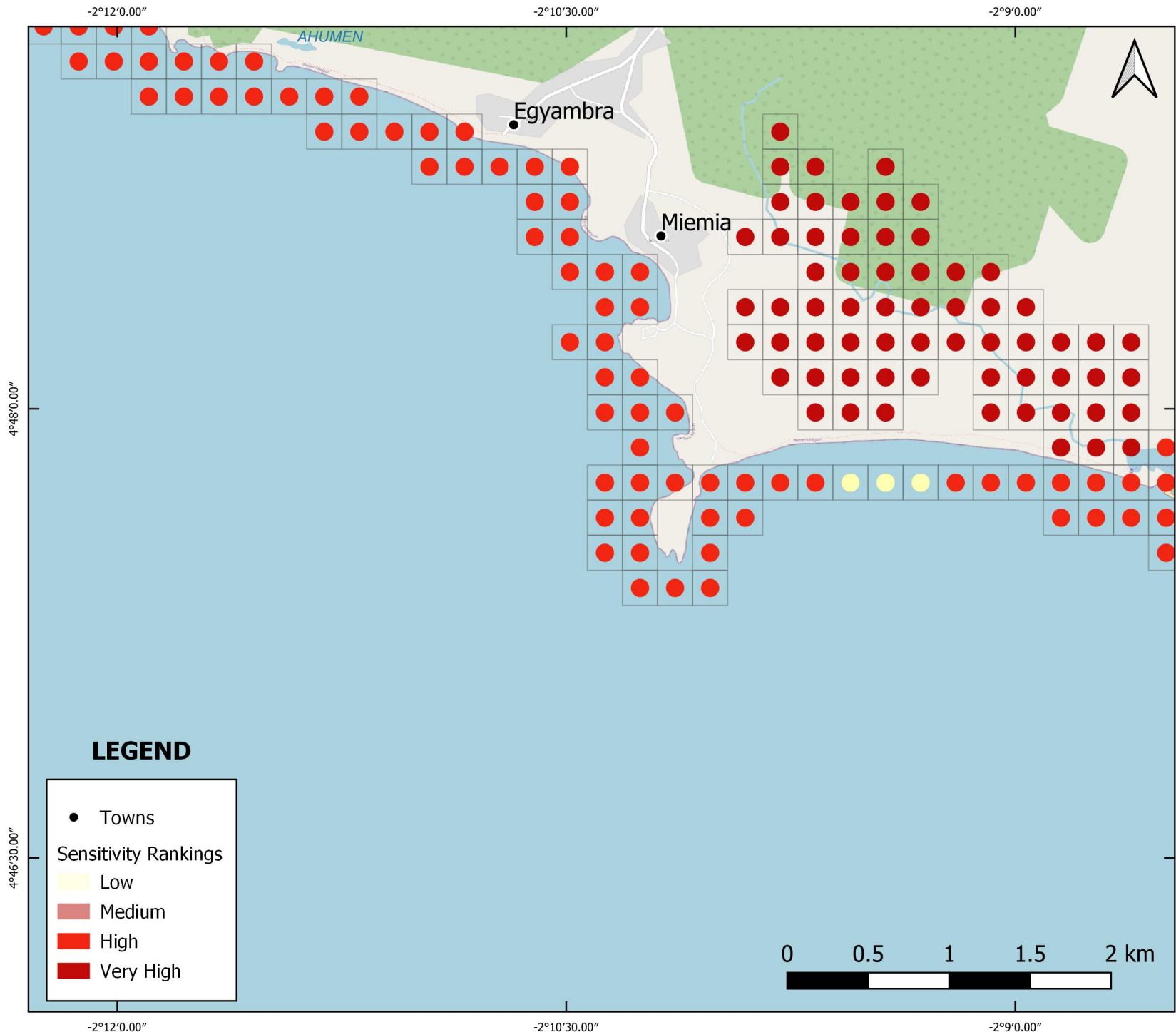
The rocks are substrate for a wide variety of species of macroalgae and barnacles, and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Sargassum vulgare*, *Dictyopterus delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnium sp.*

On rocky flats with abundant crevices there are tide pools where pools of water collect in hollows and depressions of the rocks at low tide. The tide pools house a rich vegetation of algae and a diverse fauna of crabs, sea urchins and fish.

Kpani-Nyila Estuary

Birds: The Estuary serves as a feeding site for waterfowl including: Common tern, Sandwich tern, Black tern, Ringed plover, Grey plover, Common sandpiper, Sanderling, Knot, Little stint, Curlew sandpiper, Marsh sandpiper, Green shank, Black-winged stilt, Herons, Fulvous duck and White-faced tree duck.

Fish and crustaceans: The estuary provides nursery sites for fish and crustaceans. Estuarine fish include the tarpon *Megalops*, the shad *Ethmalosa dorsalis*, the long-finned herring *Ilisha melanota*, the ten-pounder *Elops lacerta*, the barracuda *Sphyraena guachancho*, the tongue sole *Cynoglossus senegalensis*, the burro fish *Pomadourus jubelini*, the burrito *Brachydeuterus auritus* and the threadfin *Pentanemus quinquarius*.



LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



Socio-economic Sensitivity Atlas Map 21



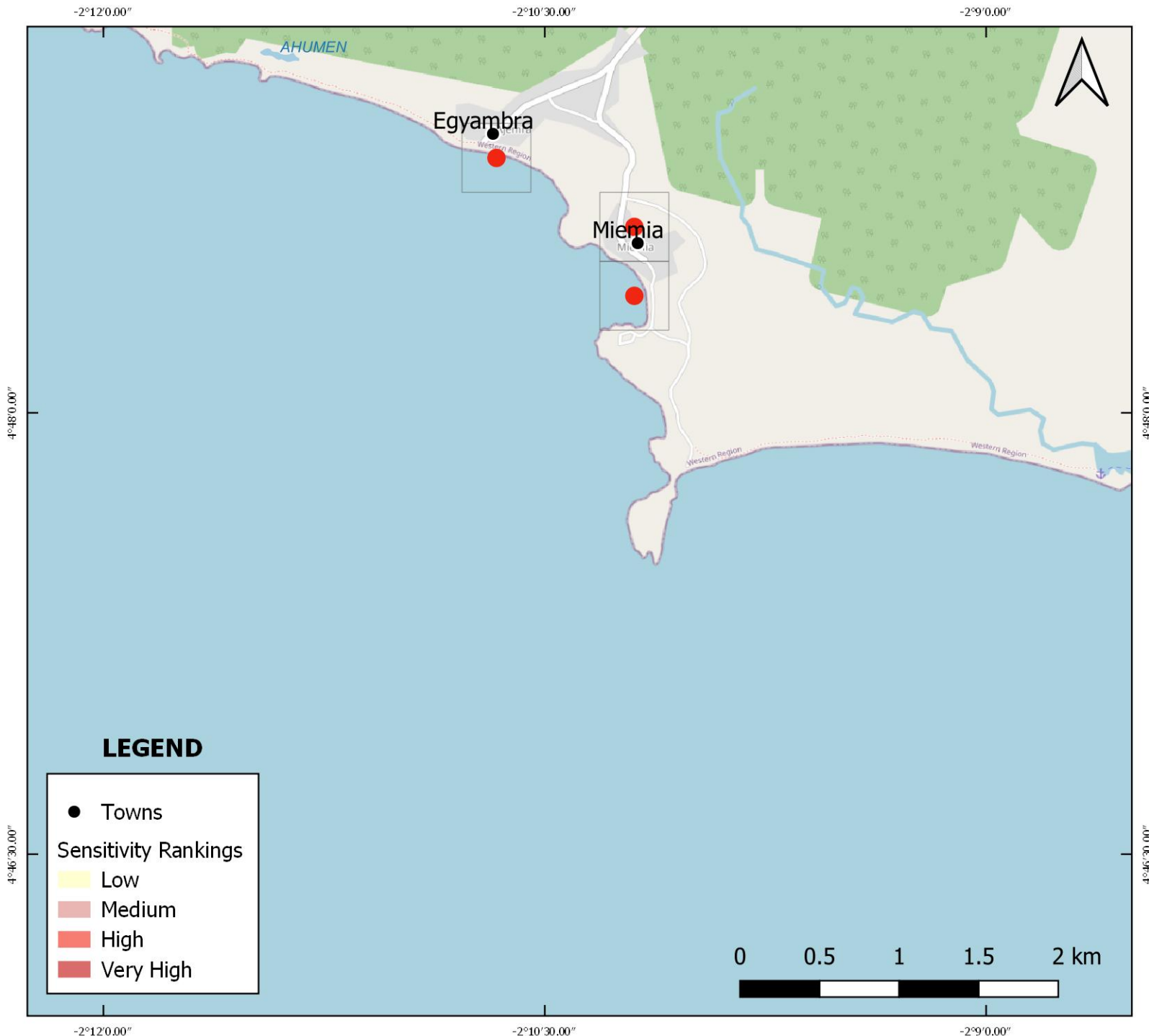
PHYSICAL ENVIRONMENT

The coastline is rock flats with abundant crevices (tidal pools) in most of the area. The eastern coast is coarse sandy beach. There is a branch of the Kpani-Nyila Estuary in the area. The estuary is fed by an extensive marshland covering about 287 km² (28,700 ha).

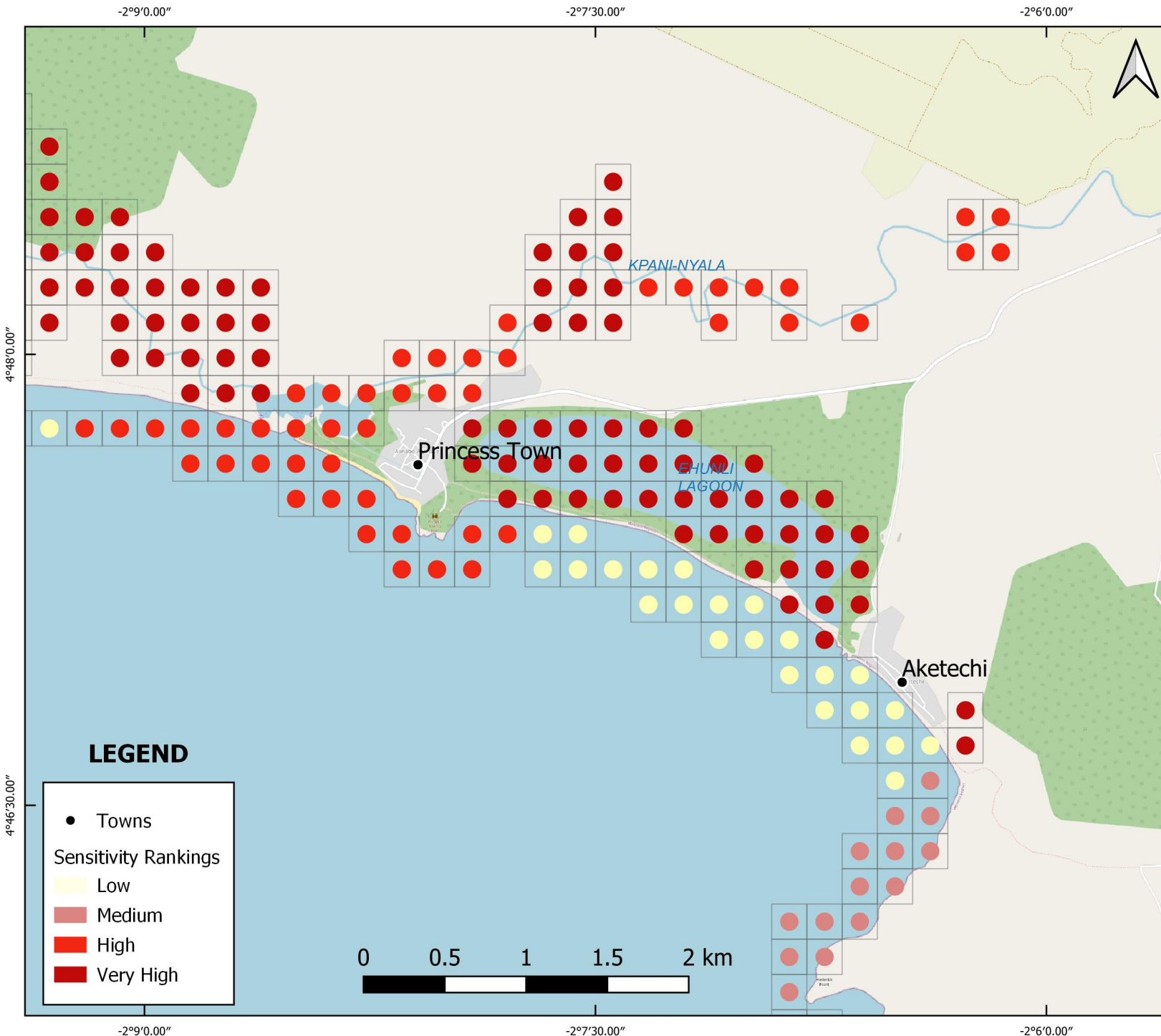
HUMAN ACTIVITY

Coastal Fishery: There are three fishing villages in the area i.e. Egyembra, Miamea and Modrokenli. Miamea and Modrokenli have one landing beach each. The predominant fishing methods used are the lobster nets and ali nets.

Recreation/tourism: There is a public beach at Egyembra.



Ecological Sensitivity Atlas Map 22



PHYSICAL ENVIRONMENT

Most of the coastline is sandy beach with coarse sand and moderate slope. There are two rocky headlands with exposed rocks of low to moderate slope. The Kpani-Nyila Estuary has its outlet in the area. The estuary is fed by an extensive marshland covering about 287 km² (28,700 ha).

The Ehnuli lagoon is also situated in the area. This lagoon is a closed type without connection to the sea and will therefore not be affected by an oil spill at sea.

ECOLOGICAL ENVIRONMENT

The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Sargassum vulgare*, *Dictyopteris delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

Intertidal rocks covered by abundant algal growth, which are exposed at low tide are encountered at Princess Town. This habitat is very important as nursery area for fish.

Kpani-Nyila Estuary

Birds: The Estuary serves as a feeding site for water fowl including: Common tern, Sandwich tern, Black tern, Ringed plover, Grey plover, Common sandpiper, Sanderling, Knot, Little stint, Curlew sandpiper, Marsh sandpiper, Green shank, Black-winged stilt, Herons, Fulvous duck and White-faced tree duck.

Fish and crustaceans: The estuary provides nursery sites for fish and crustaceans. Estuarine fish include the tarpon *Megalops*, the shad *Ethmalosa dorsalis*, the long finned herring *Ilisha melanota*, the ten-pounder *Elops lacerta*, the barracuda *Sphyrnaea guachancho*, the tongue sole *Cynoglossus senegalensis*, the burro fish *Pomadourus jubelini*, the burrito *Brachydeuterus auritus* and the threadfin *Pentanemus quinquarius*.

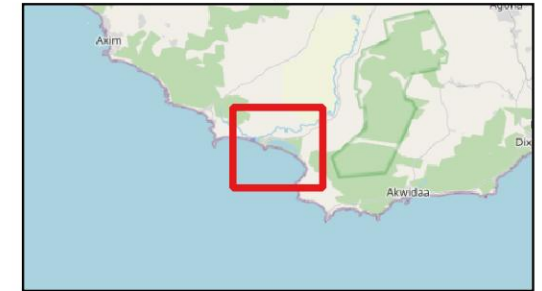
Ehnuli lagoon

Vegetation: There are stands of mangroves in Ehnuli lagoon.

Birds: The Ehnuli lagoon is a feeding site for the waterfowl.



Socio-economic Sensitivity Atlas Map 22



PHYSICAL ENVIRONMENT

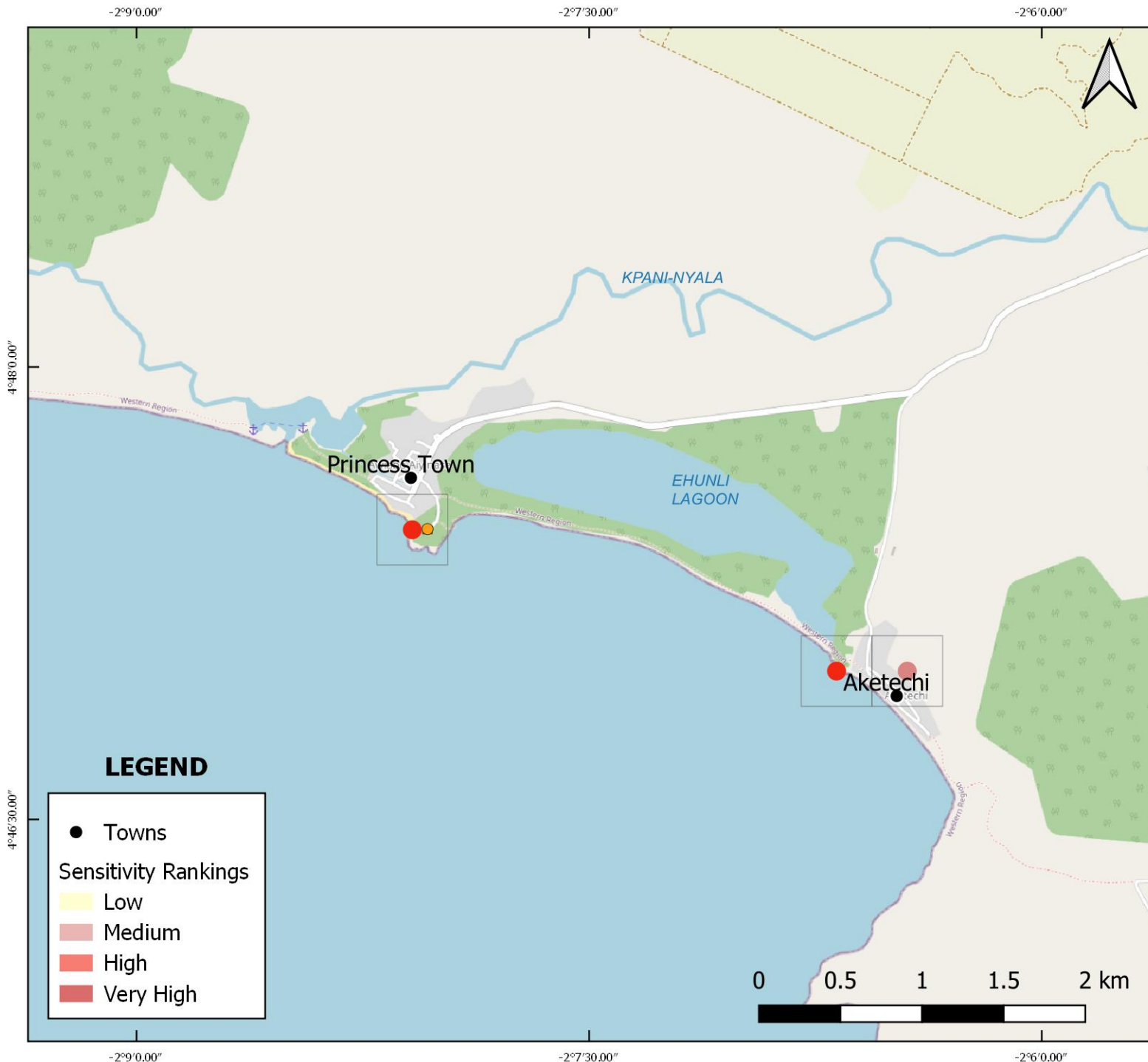
Most of the coastline is sandy beach with coarse sand and moderate slope. There are two rocky headlands with exposed rocks of low to moderate slope. The Kpani-Nyila Estuary has its outlet in the area. The estuary is fed by an extensive marshland covering about 287 km² (28,700 ha). The Ehnuli lagoon is also situated in the area. This lagoon is a closed type without connection to the sea and will therefore not be affected by an oil spill at sea.

HUMAN ACTIVITY

Coastal Fishery: Princess Town has a fish landing beach and the dominant fishing methods used are purse seining and lobster nets. Akitekyi has one fish landing beach at Ehole Mpoano. The main fishing method is purse seining.

Lagoon Fishery: Ehnuli is important for subsistence fishing.

Recreation/tourism: There is an old fort at Princess town, Fort Gross Fredericksburg. The fort was built by the Brandenburg-Prussians in 1683.



-2°7'30.00"

-2°6'0.00"

-2°4'30.00"

4°46'30.00"

4°46'30.00"

4°45'0.00"

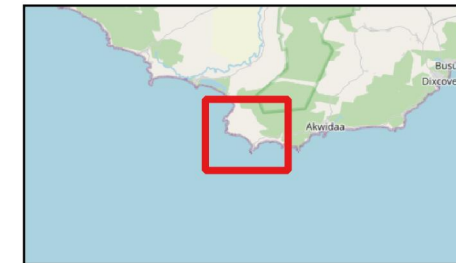
4°45'0.00"

-2°7'30.00"

-2°6'0.00"

-2°4'30.00"

Ecological Sensitivity Atlas Map 23



PHYSICAL ENVIRONMENT

Most of the coastline is rocks of low to moderate slope. There are also two stretches of beach with coarse sand and moderate slope.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteria delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnium sp.*

LEGEND

● Towns

Sensitivity Rankings

Low

Medium

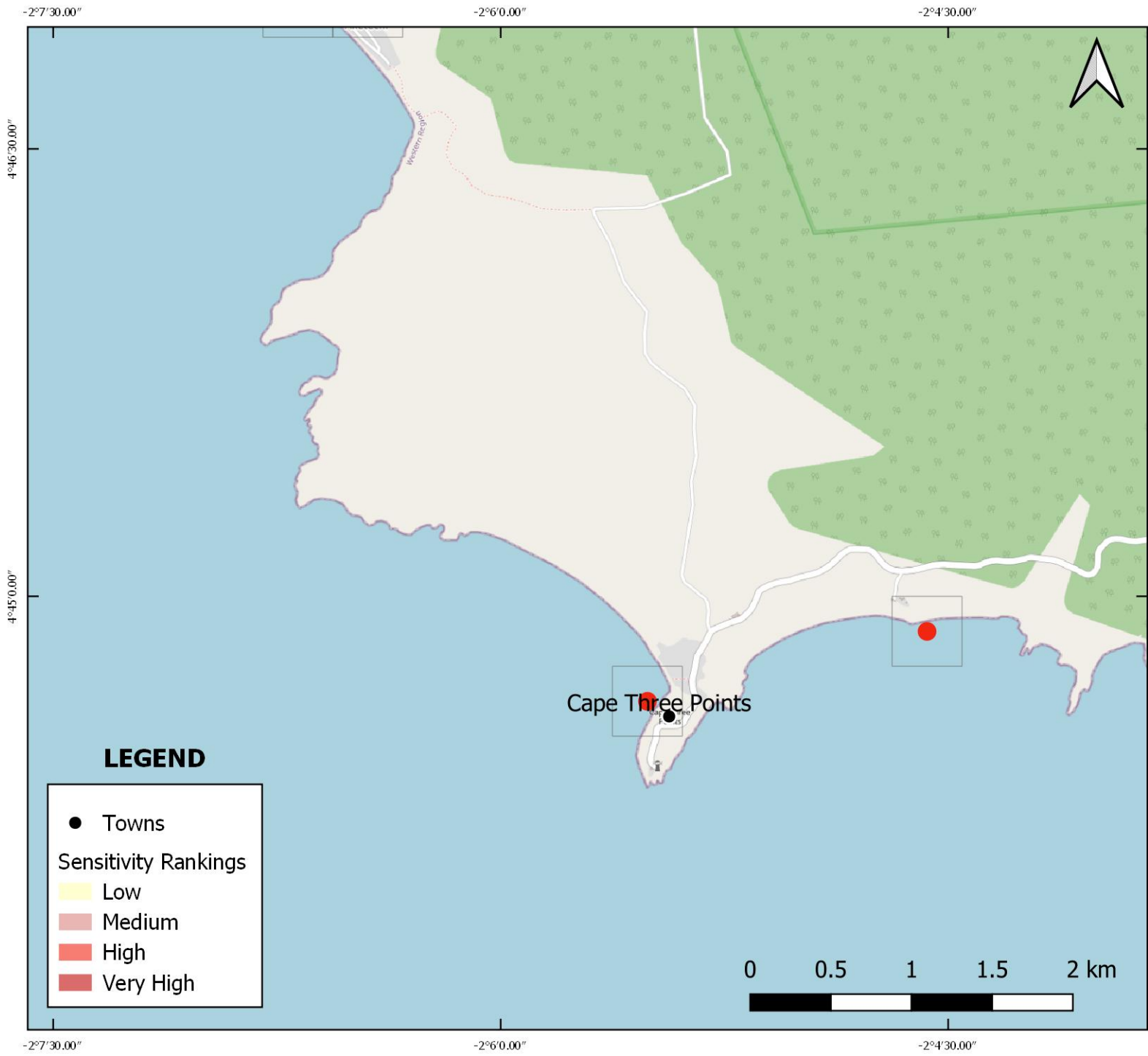
High

Very High

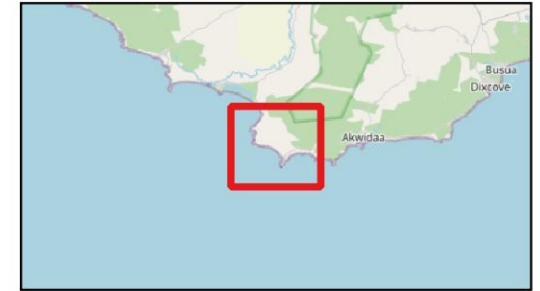
Cape Three Points



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development Programme (OfD). All Rights Reserved.



**Socio-economic Sensitivity Atlas
Map 23**



PHYSICAL ENVIRONMENT

Most of the coastline is rocks of low to moderate slope. There are also two stretches of beach with coarse sand and moderate slope.

HUMAN ACTIVITY

Coastal Fishery: Cape 3- Point has a landing beach at Atinkyin. The predominant fishing methods are line and lobster nets.

Industrial/Domestic utilization: There is a power generation plant in the area.



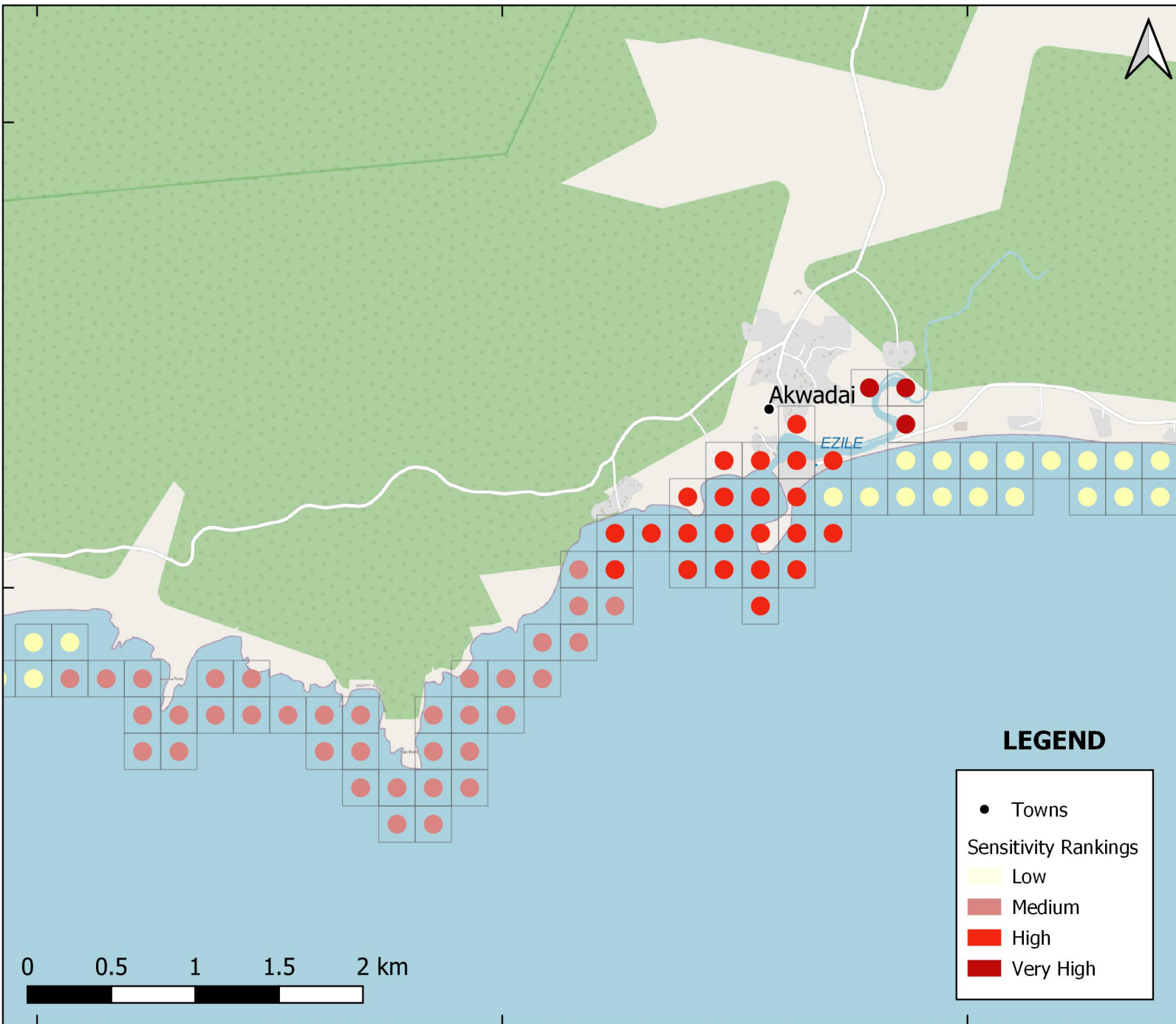
-2°4'30.00" -2°3'0.00" -2°1'30.00"

4°46'30.00"

4°46'30.00"

4°45'0.00"

4°45'0.00"



-2°4'30.00" -2°3'0.00" -2°1'30.00"

Ecological Sensitivity Atlas Map 24



PHYSICAL ENVIRONMENT

The coastline is predominantly exposed rock with low-moderate slope. To the east there is a stretch with sandy beach of fine grained sand with low slope. The Sweni wetland discharges to the sea in the area.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity. The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteris delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

Sweni Wetland

Birds: Sweni wetland houses waterfowl, including Common tern, Little tern, Fulvous duck, White faced tree duck, Sanderling, Curlew, Curlew sandpiper, Little egret, Reef heron, Great white egret, Marsh sandpiper and Black-winged stilt.

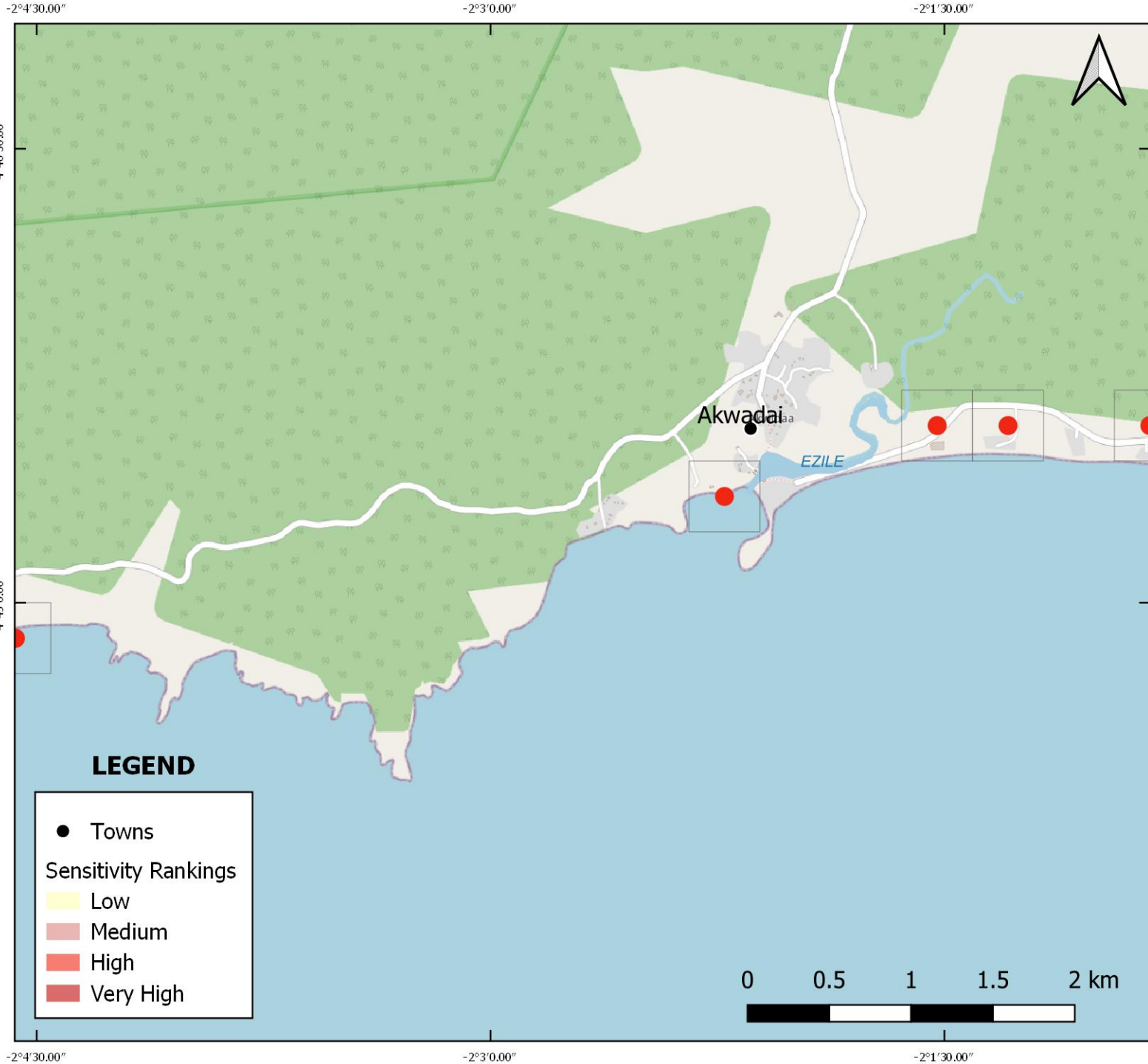
Fish and crustaceans: The Sweni wetland is a nursery site for fish and crustaceans.

LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development Programme (OfD). All Rights Reserved.



**Socio-economic Sensitivity Atlas
Map 24**



PHYSICAL ENVIRONMENT

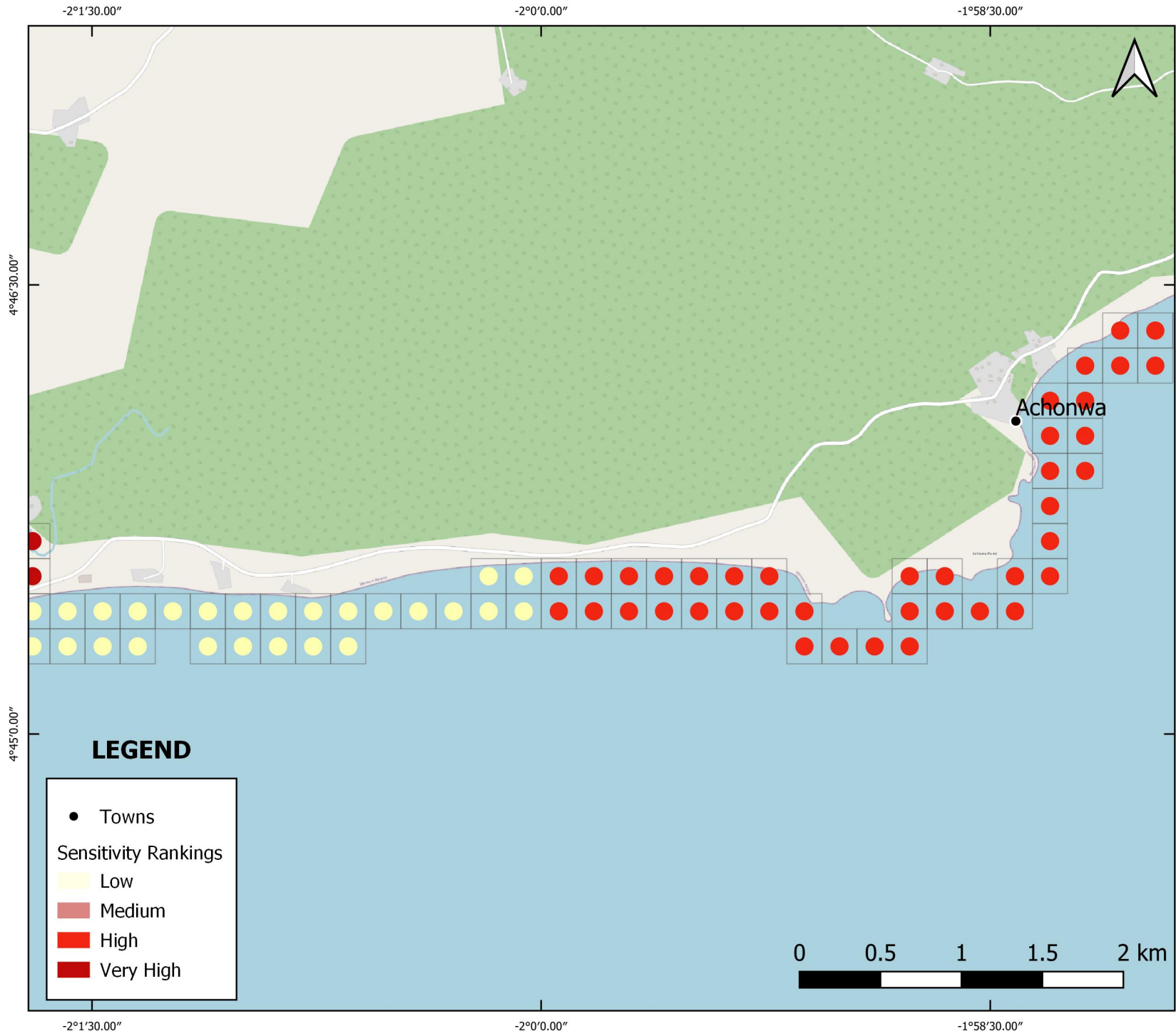
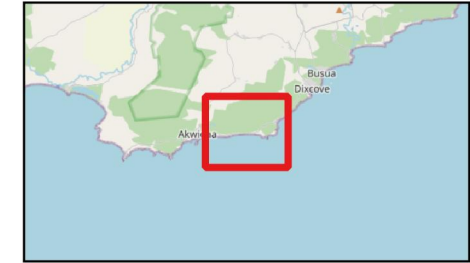
The coastline is predominantly exposed rock with low-moderate slope. To the east there is a stretch with sandy beach of fine grained sand with low slope. The Sweni wetland discharges to the sea in the area.

HUMAN ACTIVITY

Coastal Fishery: There are fish landing sites at Katakul and Akodaa. Katakul has one landing beach and the main fishing method used is the lobster net. Akoda has one landing beach and the main fishing methods used are the line nets and lobster nets.

Recreation/tourism: There is a ruin of an old fort at Akoda, i.e. fort Dorothea

Ecological Sensitivity Atlas Map 25



PHYSICAL ENVIRONMENT

The beach in the western part of the area is sandy beach with fine grained sand and low slope. The eastern part is exposed rocky flats with abundant crevices (tide pools).

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dicypoteris delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnium sp.*

LEGEND

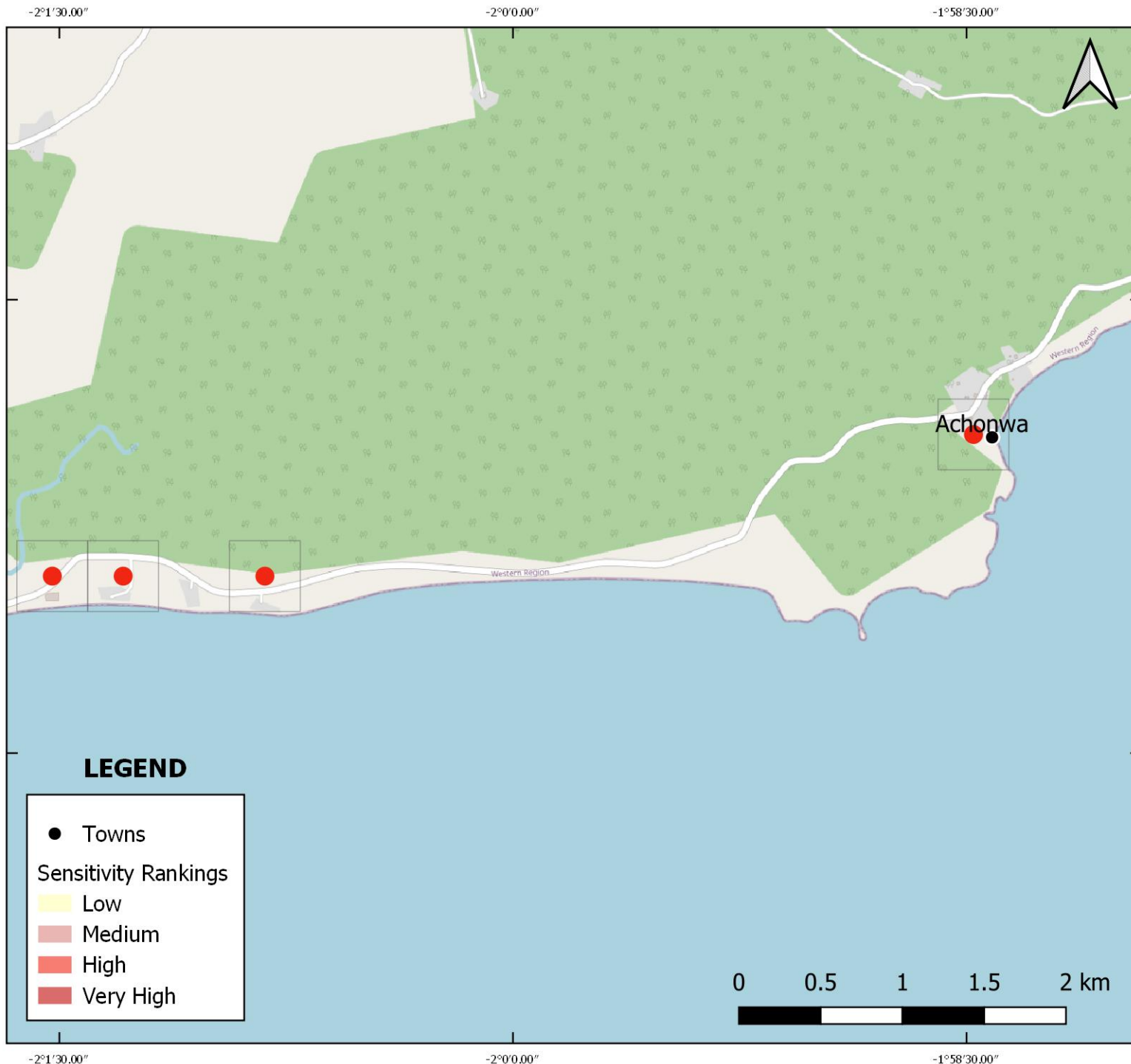
- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High

4°45'0.00"

4°46'30.00"



**Socio-economic Sensitivity Atlas
Map 25**



PHYSICAL ENVIRONMENT

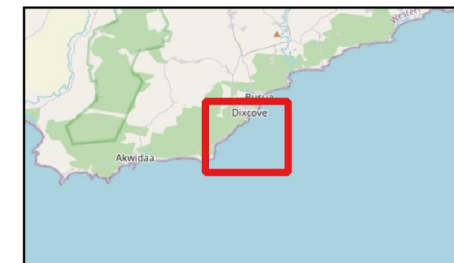
The beach in the western part of the area is sandy beach with fine grained sand and low slope. The eastern part is exposed rocky flats with abundant crevices (tide pools).

HUMAN ACTIVITY

Coastal Fishery: There is a fish landing site at Achonwa where the fishermen predominantly use lobster nets.



Ecological Sensitivity Atlas Map 26



PHYSICAL ENVIRONMENT

The coast is exposed rocky flats with abundant crevices (tide pools).

ECOLOGICAL ENVIRONMENT

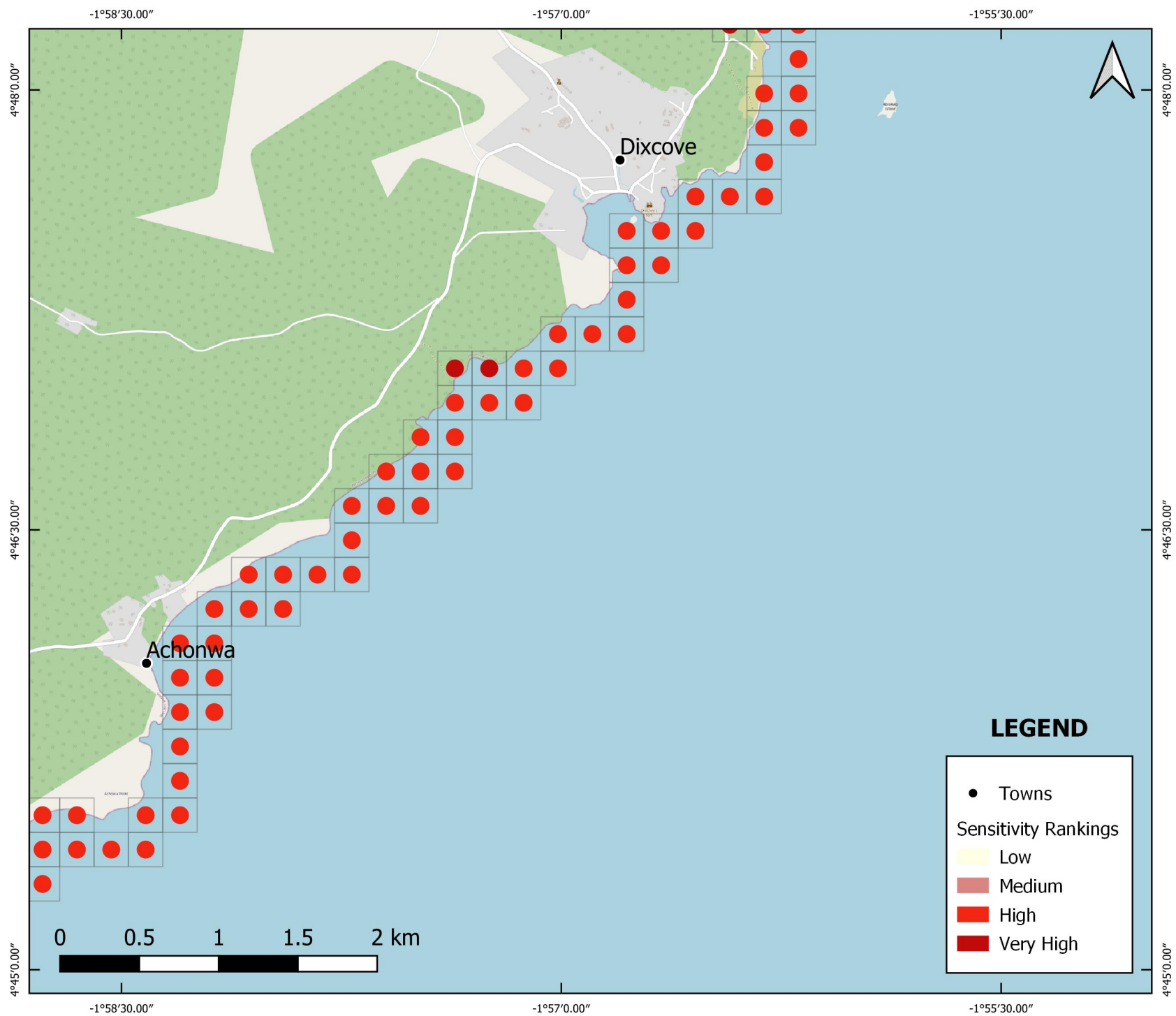
The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustaceans and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteris delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnium sp.*

On rocky flats with abundant crevices there are tide pools where pools of water collect in hollows and depressions of the rocks at low tide. The tide pools house a rich vegetation of algae and a diverse fauna of crabs, sea urchins and fish.

Intertidal rocks covered by abundant algal growth, which are exposed at low tide, are encountered at Amoakofre Point and Alatakrom. This habitat is very important as a nursery area for fish.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



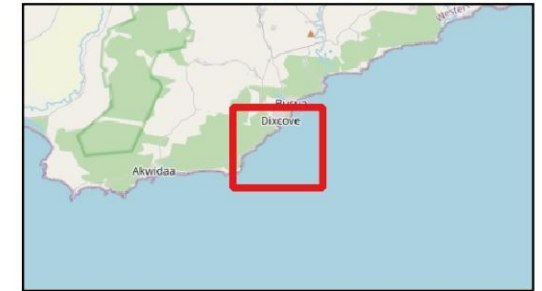
4°45'0.00"

4°46'30.00"

4°48'0.00"



Socio-economic Sensitivity Atlas Map 26



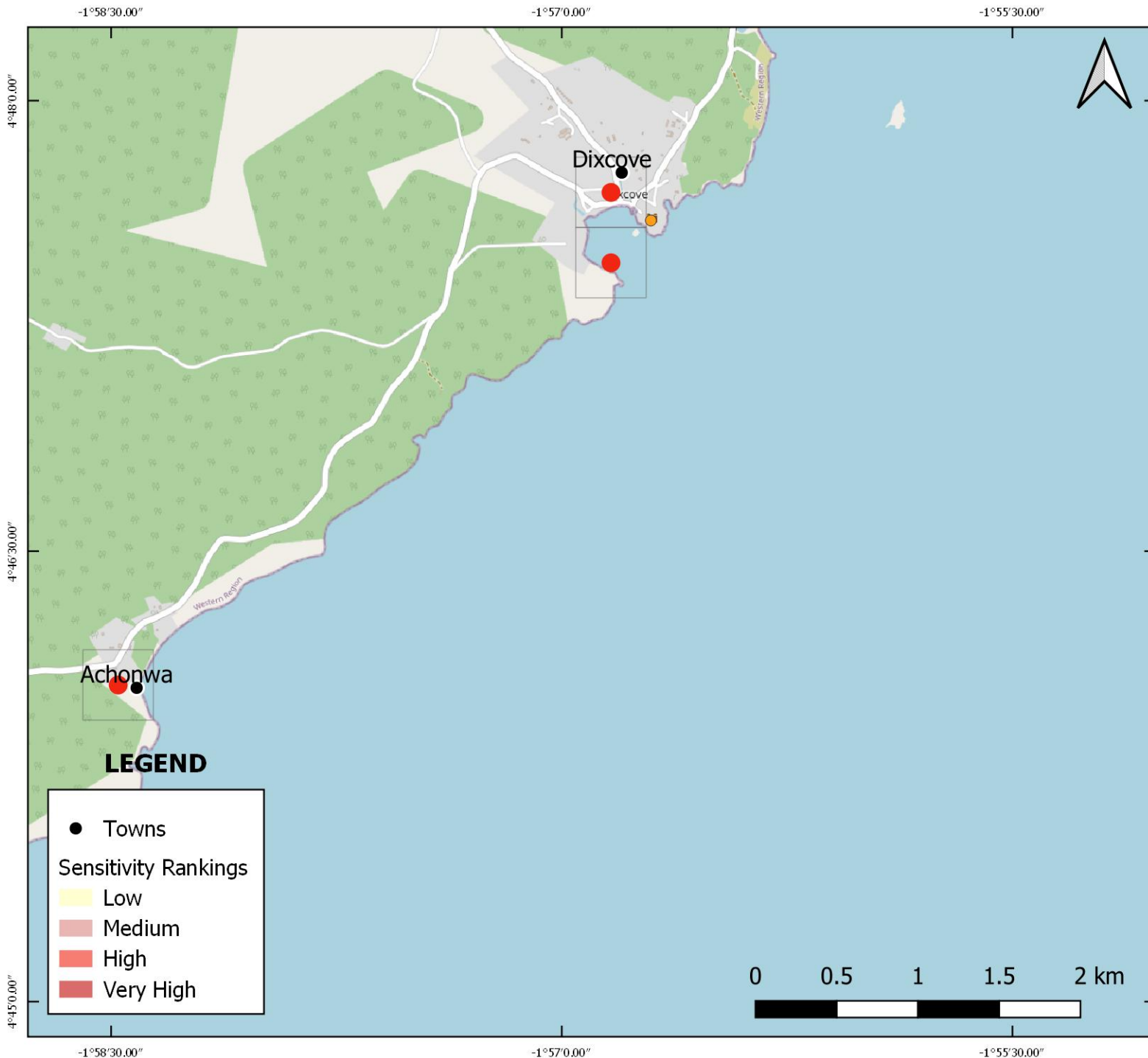
PHYSICAL ENVIRONMENT

The coast is exposed rocky flats with abundant crevices (tidal pools).

HUMAN ACTIVITY

Coastal Fishery: There is a fish landing site at Achonwa where the fishermen predominantly use lobster nets for fishing. Lower Dixcove (Alatakrom) has one landing beach. Nifa nifa and Ali nets are the main fishing methods used. Upper Dixcove has one landing beach and the predominant fishing methods are nifa nifa and lobster nets.

Recreation/tourism: In Dixcove there is an old fort, i.e. fort Metal cross. The fort was built by the British in the period 1692-1696.



-1°57'0.00" -1°55'30.00" -1°54'0.00"

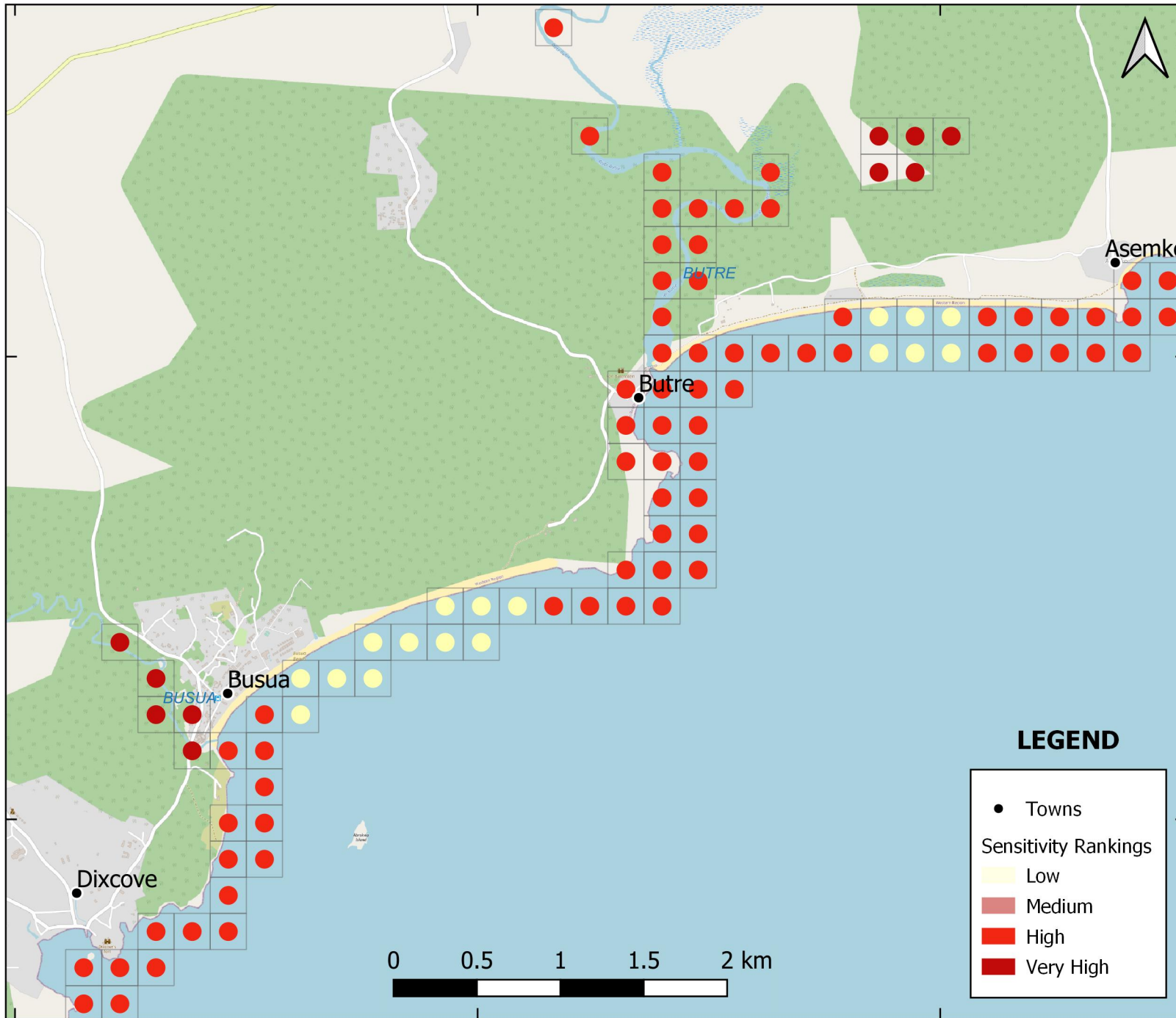
4°49'30.00"

4°48'0.00"

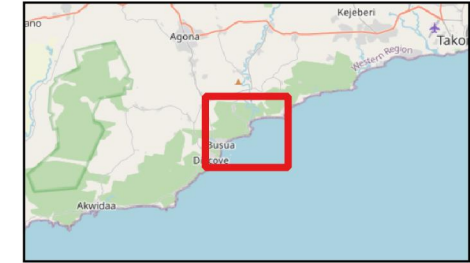
-1°57'0.00"

-1°55'30.00"

-1°54'0.00"



Ecological Sensitivity Atlas Map 27



PHYSICAL ENVIRONMENT

The coast is sandy beach with coarse sand and exposed rocky flats with abundant crevices (tidal pool). Butre Wetland discharges to the sea at Butre.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustaceans and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteris delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

On rocky flats with abundant crevices there are tide pools where pools of water collect in hollows and depressions of the rocks at low tide. The tide pools house a rich vegetation of algae and a diverse fauna of crabs, sea urchins and fish.

Intertidal rocks covered by abundant algal growth, which are exposed at low tide, are encountered between Alatakrom and Busua. This habitat is very important as a nursery area for fish.

Butre Wetland

Birds: Butre Wetland is a roosting site for migrating birds. The following birds are regularly encountered: Little egret, Reef heron, Great white egret, Fulvous tree duck, White-faced tree duck, Marsh sandpiper, Black-winged stilt, Sanderling, Curlew, Curlew sandpiper, Wood sandpiper and Grey plover.

Fish and crustaceans: Butre Wetland is nursery and feeding area for fish and crustaceans.

LEGEND

● Towns

Sensitivity Rankings

Low

Medium

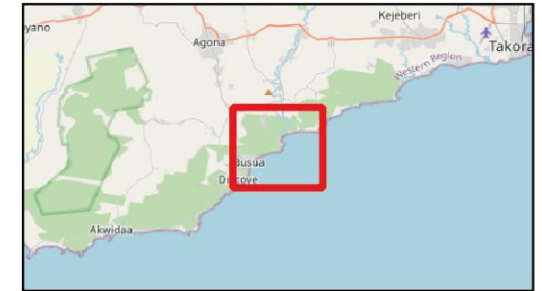
High

Very High



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development Programme (OfD). All Rights Reserved.

Socio-economic Sensitivity Atlas Map 27



PHYSICAL ENVIRONMENT

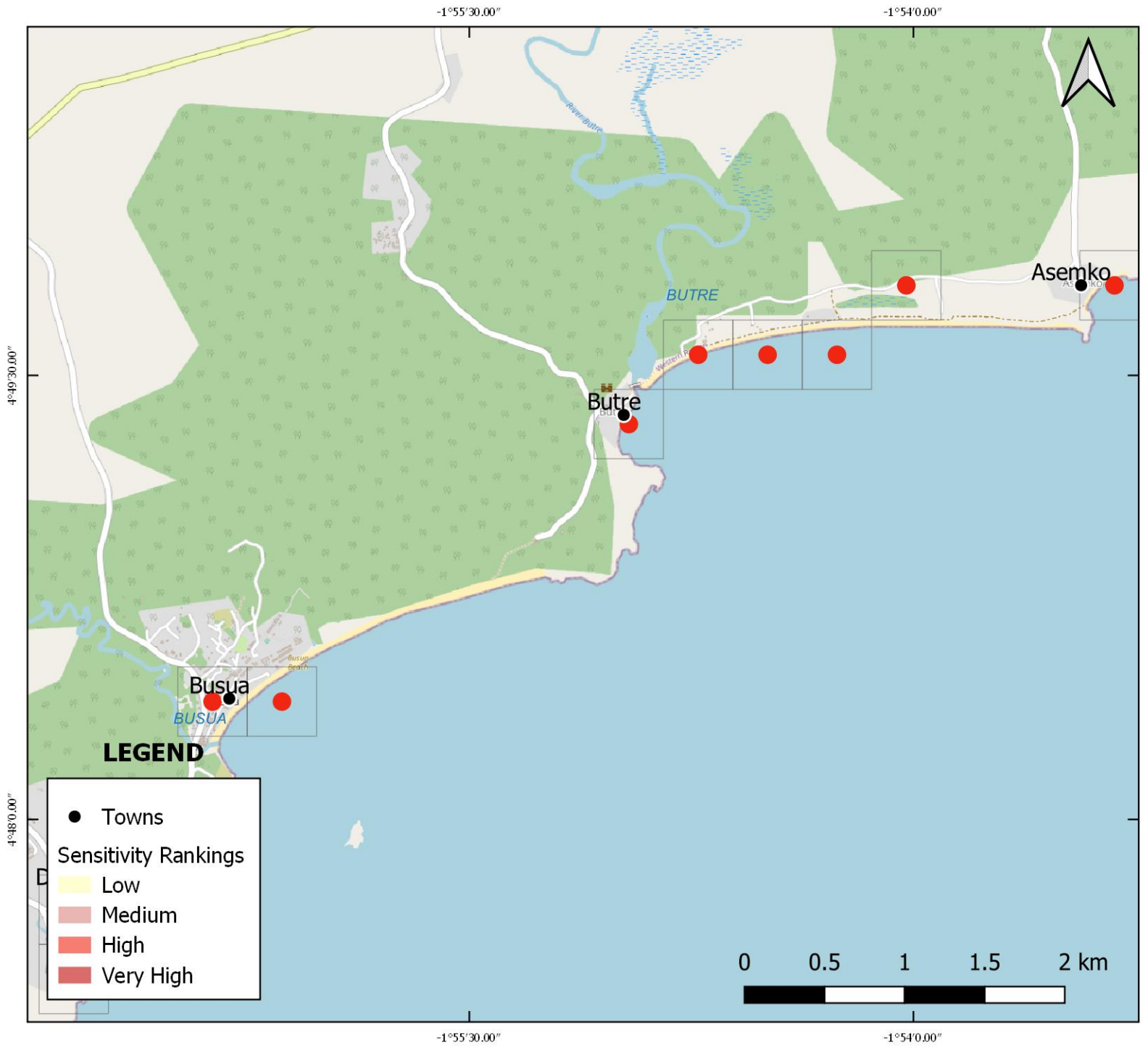
The coast is sandy beach with coarse sand and exposed rocky flats with abundant crevices (tidal pool). Butre Wetland discharges to the sea at Butre.

HUMAN ACTIVITY

Coastal Fishery: There is a fish landing beach at Busua where the dominant fishing method is lobster nets.

Butre has two landing beaches one at Awuna beach and one at Butre Etrom. Lobster nets and Ali nets are the predominant fishing methods. Beach seining are used at Awuna.

Recreation/tourism: There is an old fort in Dixcove (Fort Metal Cross), built by the British in the period 1692-1696. There is also a fort in Butre. It is the Fort Batenstein, constructed by the Dutch in 1656. There are hotels at the waterfront in Busua and several minor resorts. There are recreational beaches at Busua and Butre.

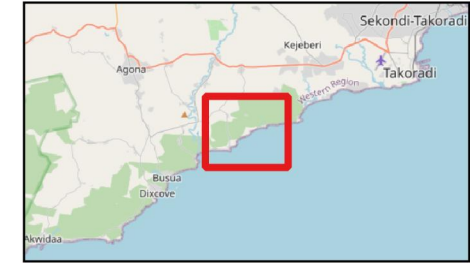


-1°54'0.00"

-1°52'30.00"

-1°51'0.00"

Ecological Sensitivity Atlas Map 28



4°51'0.00"

4°51'0.00"

4°49'30.00"

4°49'30.00"

-1°54'0.00"

-1°52'30.00"

-1°51'0.00"

Akatanyi

Mpatamo

Asemko

ATATSIR

ASUKUTIA



LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High

PHYSICAL ENVIRONMENT

The coast between Tobola Point and Anwiwpo point is exposed rocky flats with abundant crevices (tide pools). The rest of the coastline is coarse sandy beach with moderate slope.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

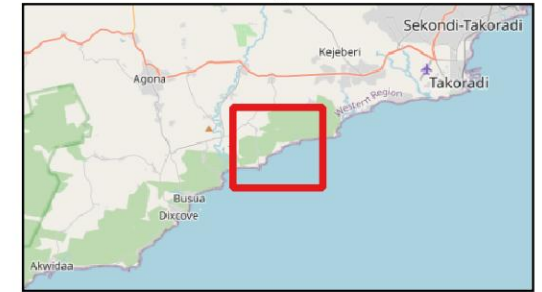
The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustaceans and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteris delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

On rocky flats with abundant crevices there are tide pools where pools of water collect in hollows and depressions of the rocks at low tide. The tide pools house a rich vegetation of algae and a diverse fauna of crabs, sea urchins and fish.



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development Programme (OfD). All Rights Reserved.

Socio-economic Sensitivity Atlas Map 28

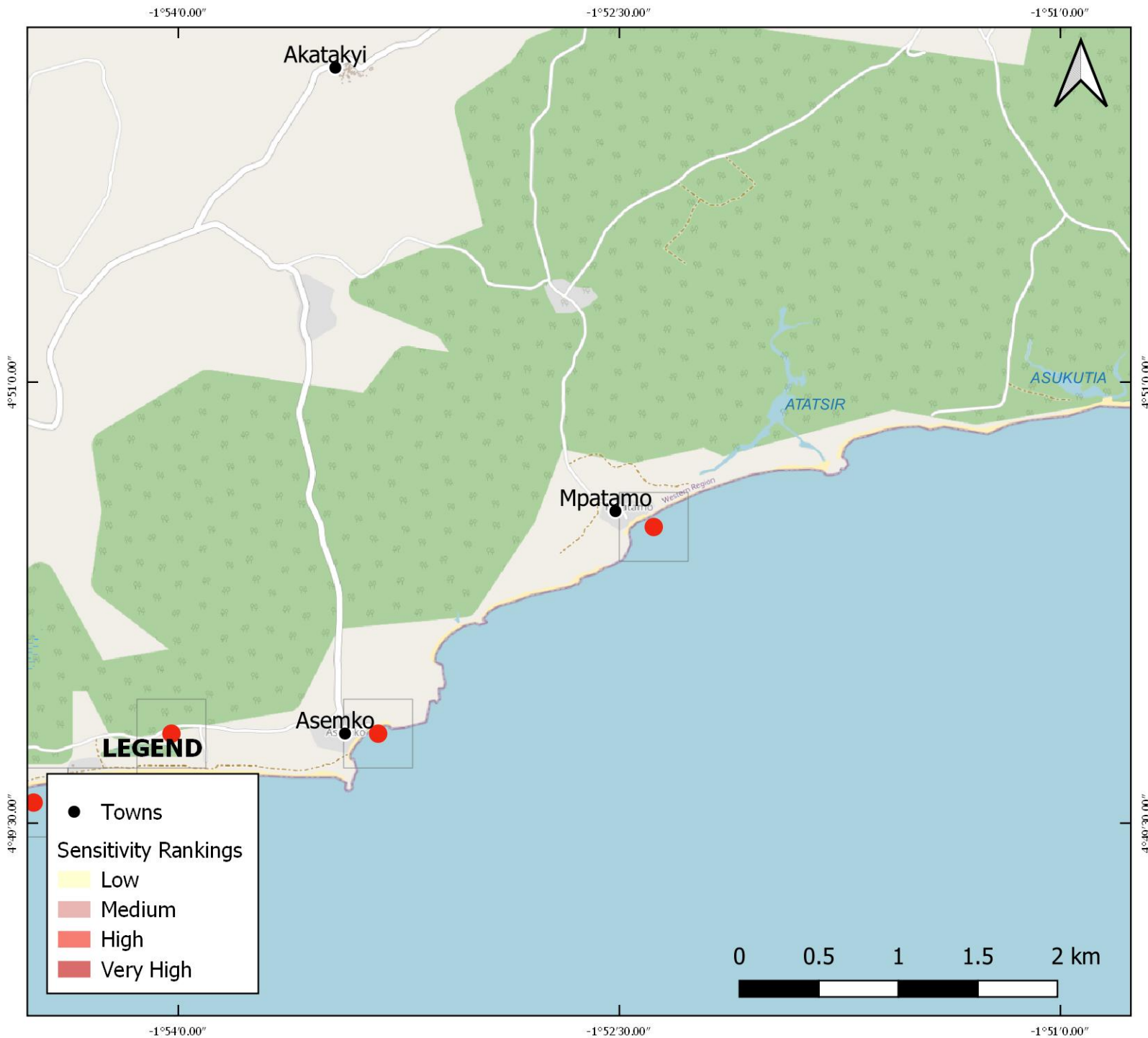


PHYSICAL ENVIRONMENT

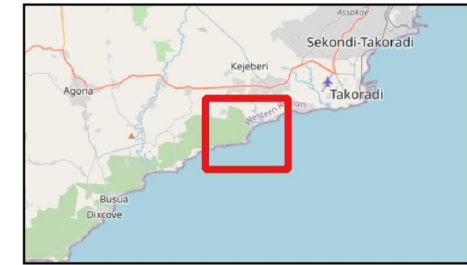
The coast between Tobola Point and Anwiwpo point is exposed rocky flats with abundant crevices (tide pools). The rest of the coastline is coarse sandy beach with moderate slope.

HUMAN ACTIVITY

Coastal Fishery: Asemko has one landing beach. Lobster nets and ali nets are the main fishing methods. Ampatano has one landing beach and mainly uses set nets.



Ecological Sensitivity Atlas Map 29



PHYSICAL ENVIRONMENT

The coast around Kokopo Point and Adjoa are exposed rocky flats with abundant crevices (tide pools). The rest of the coast is coarse sandy beach with moderate slope. There are four lagoons in the area, the Asukutia, the Onolimeleme, the Aladoa and the Adjoa. They are all closed lagoons without connection to the sea and will therefore not be affected by an oil spill at sea.

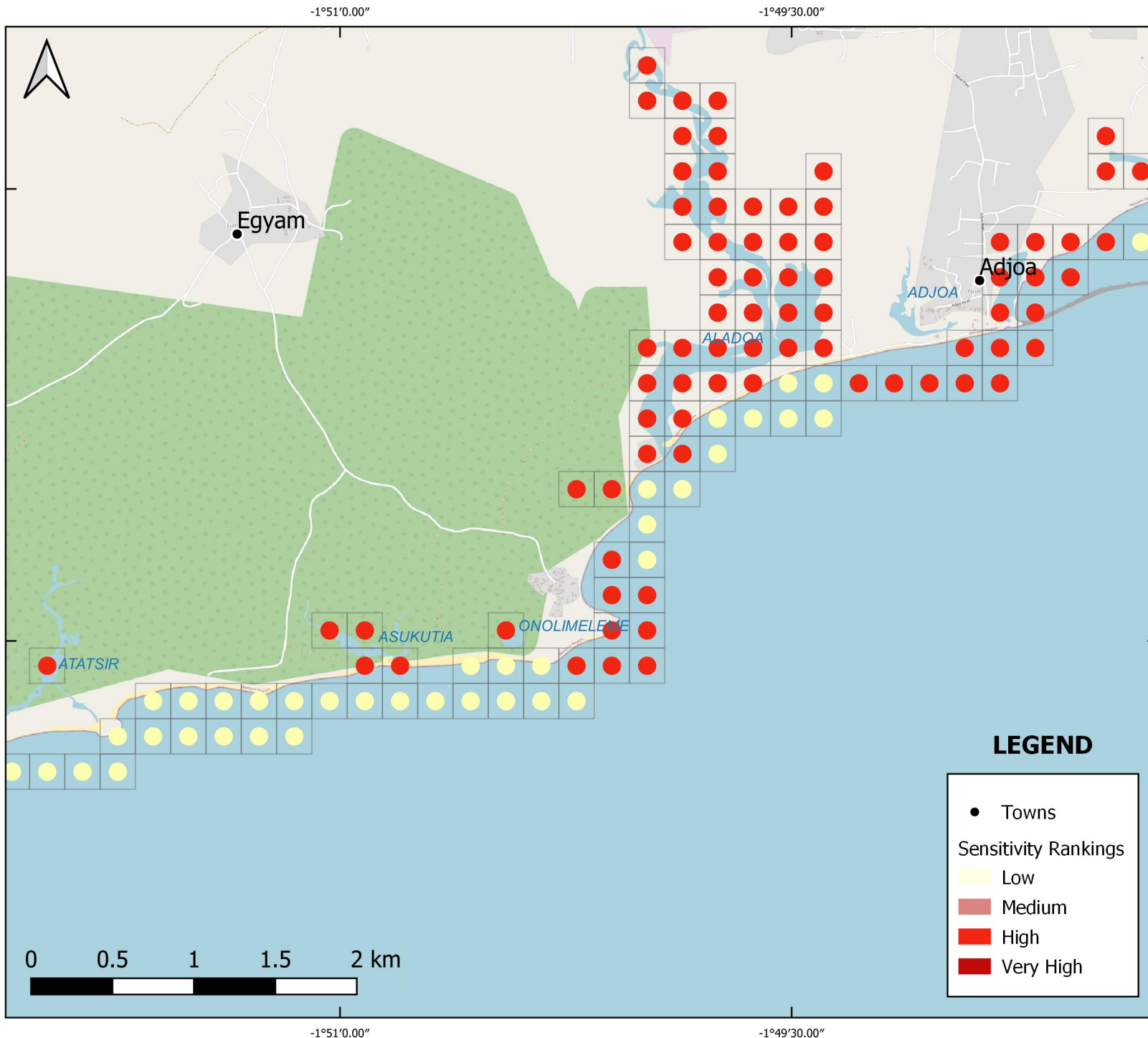
ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

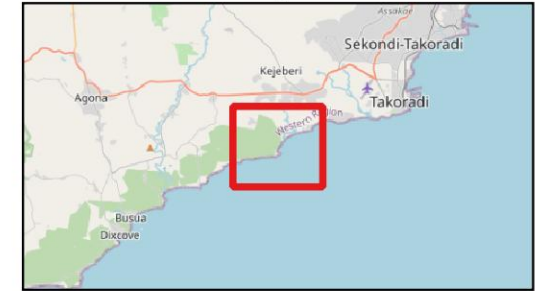
The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustaceans and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopterus delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnium sp.*

On rocky flats with abundant crevices there are tide pools where pools of water collect in hollows and depressions of the rocks at low tide. The tide pools house a rich vegetation of algae and a diverse fauna of crabs, sea urchins and fish.

Intertidal rocks covered by abundant algal growth, which are exposed at low tide, are encountered on the coastline south of Adjoa. This habitat is very important as nursery area for fish.



Socio-economic Sensitivity Atlas Map 29



PHYSICAL ENVIRONMENT

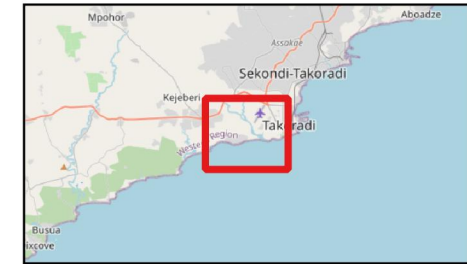
The coast around Kokopo Point and Adjoa are exposed rocky flats with abundant crevices (tide pools). The rest of the coast is coarse sandy beach with moderate slope. There are four lagoons in the area, the Asukutia, the Onolimeleme, the Aladoa and the Adjoa. They are all closed lagoons without connection to the sea and will therefore not be affected by an oil spill at sea.

HUMAN ACTIVITY

Coastal Fishery: Pupunne and Enyiwaehu have one landing beach where the dominant fishing method is set net. Adjoa has two landing beaches i.e. the Upper and the Lower beaches. The dominant fishing method used is set net.



Ecological Sensitivity Atlas Map 30



PHYSICAL ENVIRONMENT

The coastline is predominantly coarse sandy beach with moderate slope. There are rocky flats with abundant crevices (tide pools) in the eastern part of the area. There is a lagoon in the area, the Funko lagoon. This lagoon is a closed type without connection to the sea and will therefore not be affected by an oil spill at sea. The Whin estuary discharges into the sea in the area.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity. The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustaceans and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dichtyopteria delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

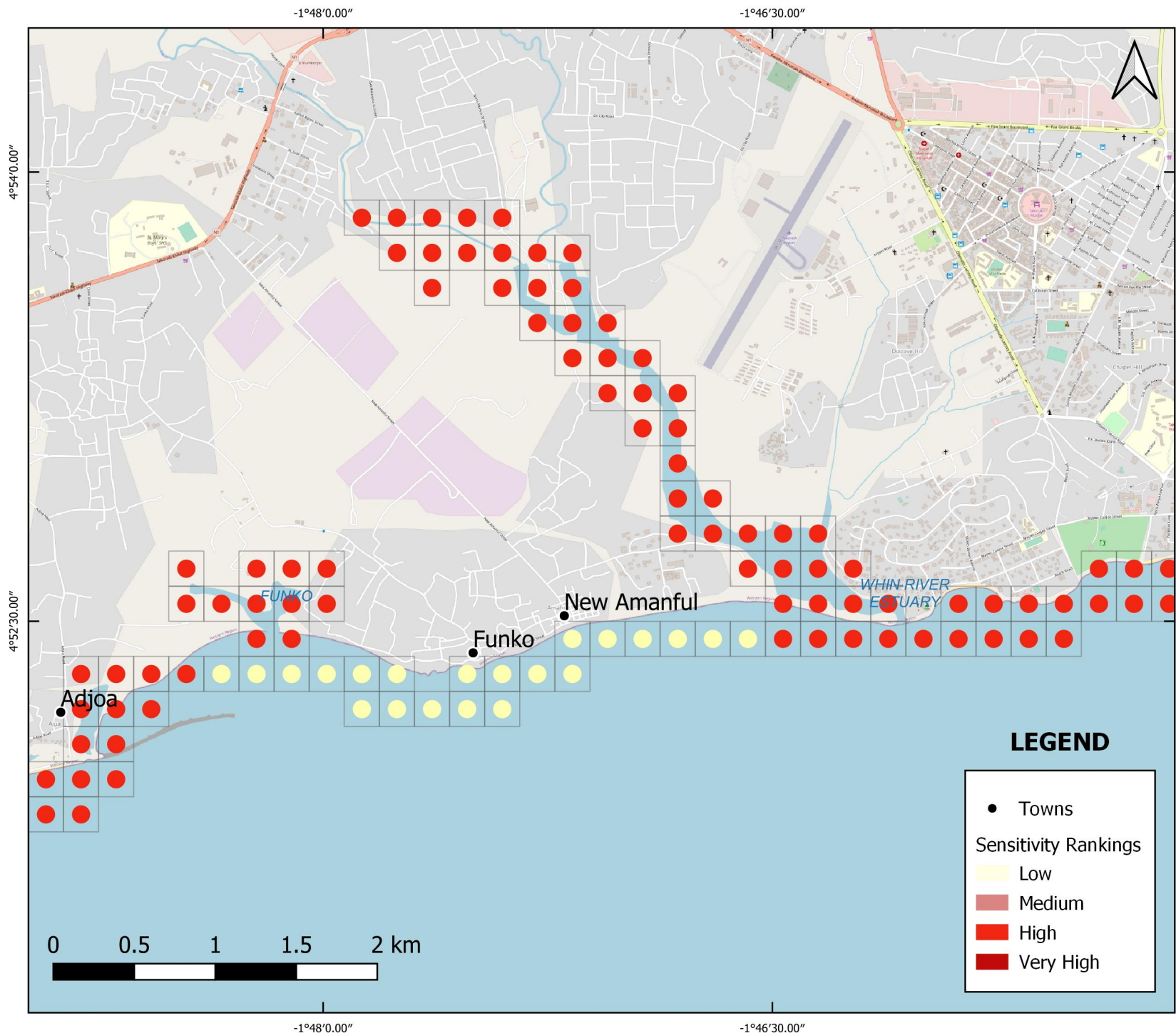
On rocky flats with abundant crevices there are tide pools where pools of water collect in hollows and depressions of the rocks at low tide. The tide pools house a rich vegetation of algae and a diverse fauna of crabs, sea urchins and fish. Intertidal rocks covered by abundant algal growth, which are exposed at low tide, are encountered on the coastline in the eastern most part of the area. This habitat is very important as a nursery area for fish.

Whin Estuary

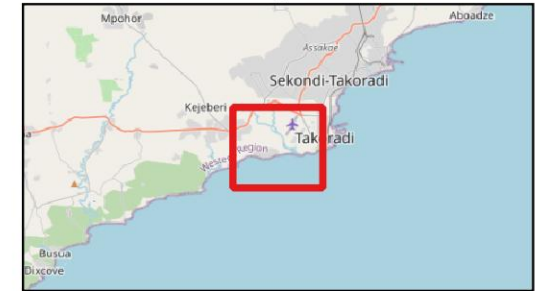
Vegetation: There is an extensive mangrove around the Whin estuary.

Birds: The estuary is a feeding site for waterfowl including Common tern, Little tern, Little egret, Reef heron, Great white egret, Black-winged stilt and White-faced tree duck.

Fish and crustaceans: The estuary is a nursery area for fish and shrimps.



Socio-economic Sensitivity Atlas Map 30



PHYSICAL ENVIRONMENT

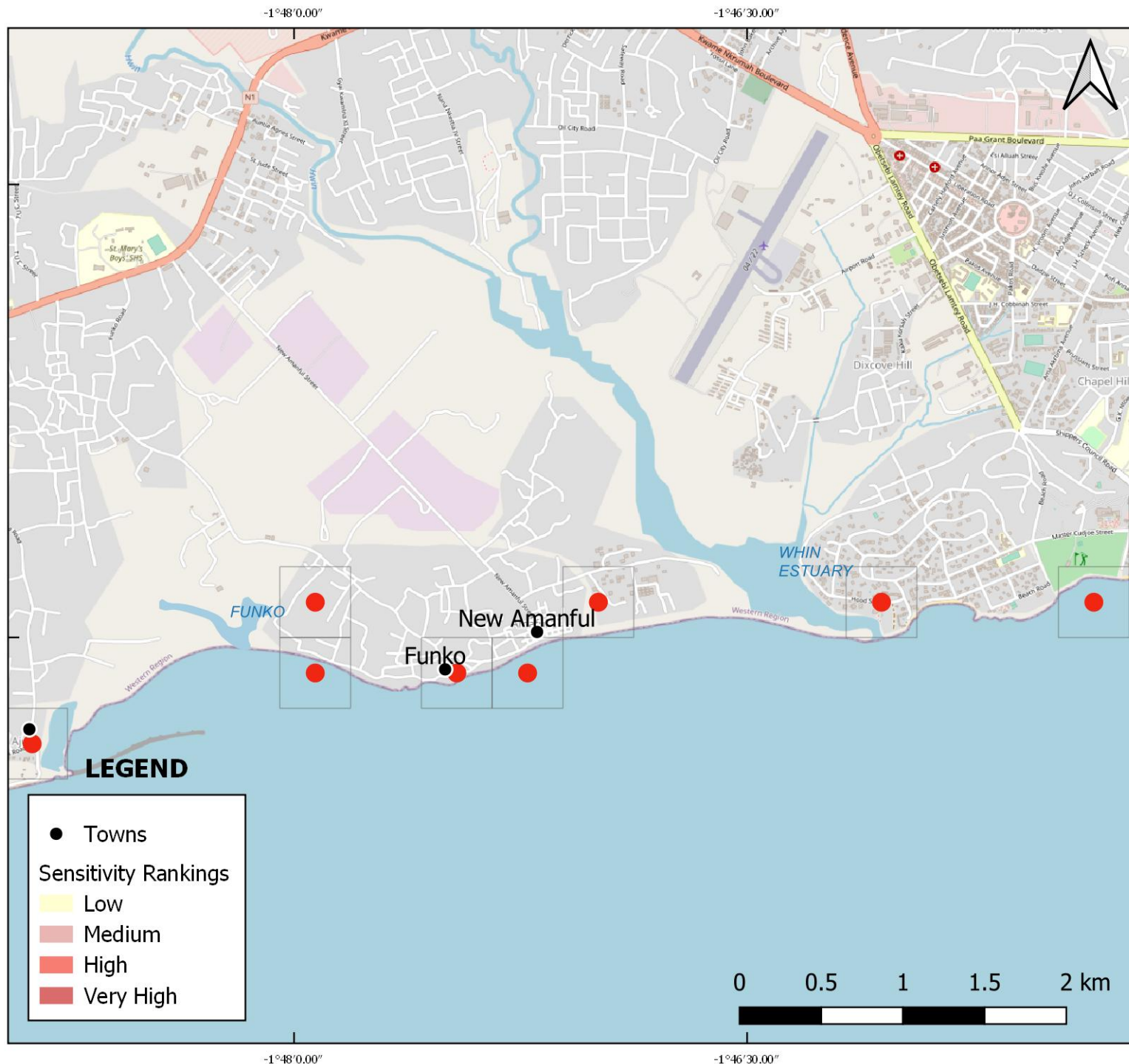
The coastline is predominantly coarse sandy beach with moderate slope. There are rocky flats with abundant crevices (tide pools) in the eastern part of the area. There is a lagoon in the area, the Funko lagoon. This lagoon is a closed type without connection to the sea and will therefore not be affected by an oil spill at sea. The Whin estuary discharges into the sea in the area.

HUMAN ACTIVITY

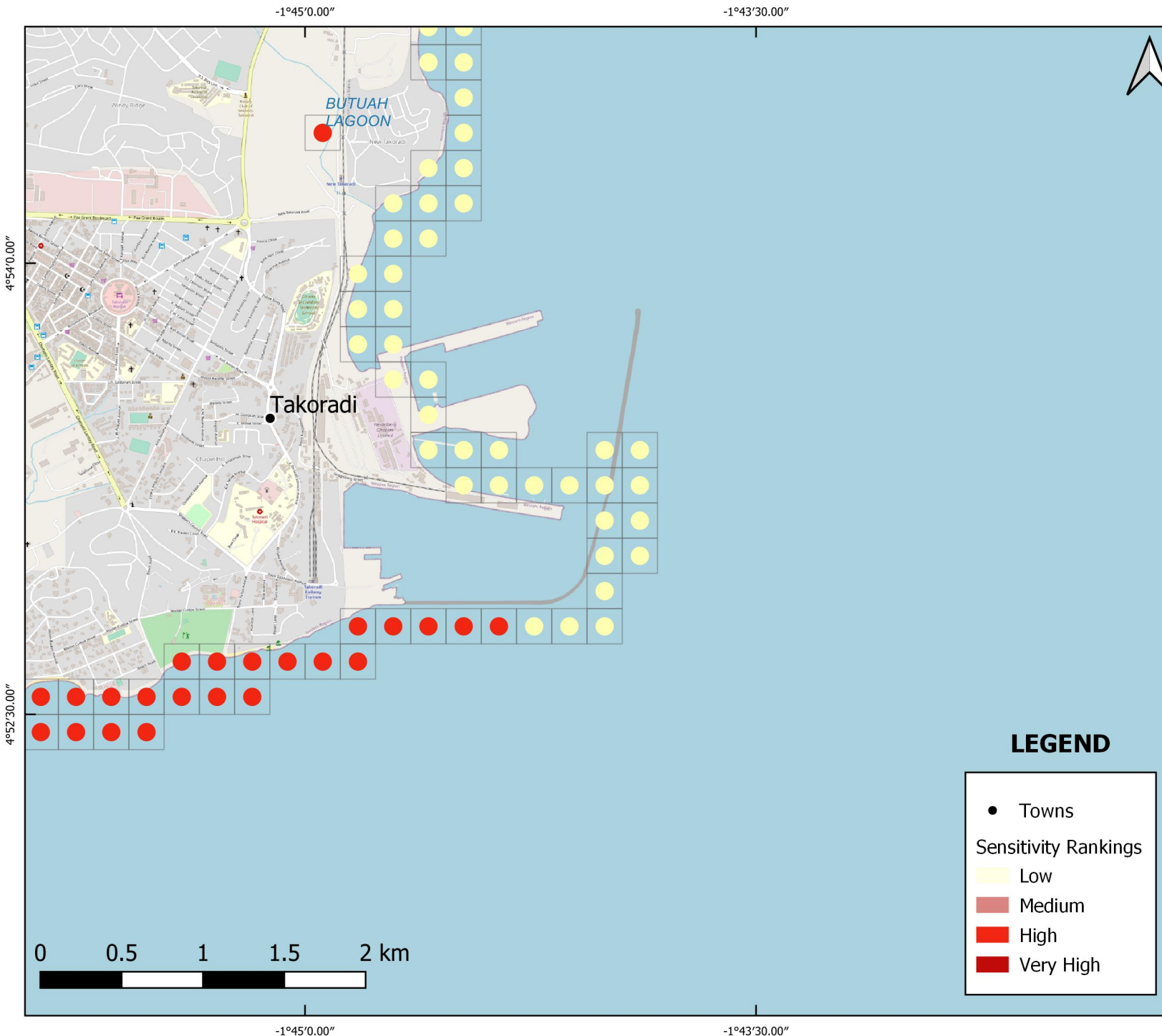
Coastal Fishery: Funko has one landing beach where the dominant fishing methods are lobster net, set net and all nets. Amanful has one landing beach at Amanfu-Kuman where the predominant fishing method is set nets.

Recreation/tourism: There is a recreational area to the east at Takoradi.

Industrial/Domestic utilization: There are salt ponds at Funko.



Ecological Sensitivity Atlas Map 31



PHYSICAL ENVIRONMENT

Most of the coastline is harbour structures. West of the harbour there are rocky flats with abundant crevices (tide pools). The beach north of Takoradi harbour is fine grained sand.

ECOLOGICAL ENVIRONMENT

The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustaceans and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteria delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

Intertidal rocks covered by abundant algal growth which is exposed at low tide is encountered west of Takoradi harbour. This habitat is very important as a nursery area for fish.

On rocky flats with abundant crevices there are tide pools where pools of water collect in hollows and depressions of the rocks at low tide. The tide pools house a rich vegetation of algae and a diverse fauna of crabs, sea urchins and fish.



Socio-economic Sensitivity Atlas Map 31



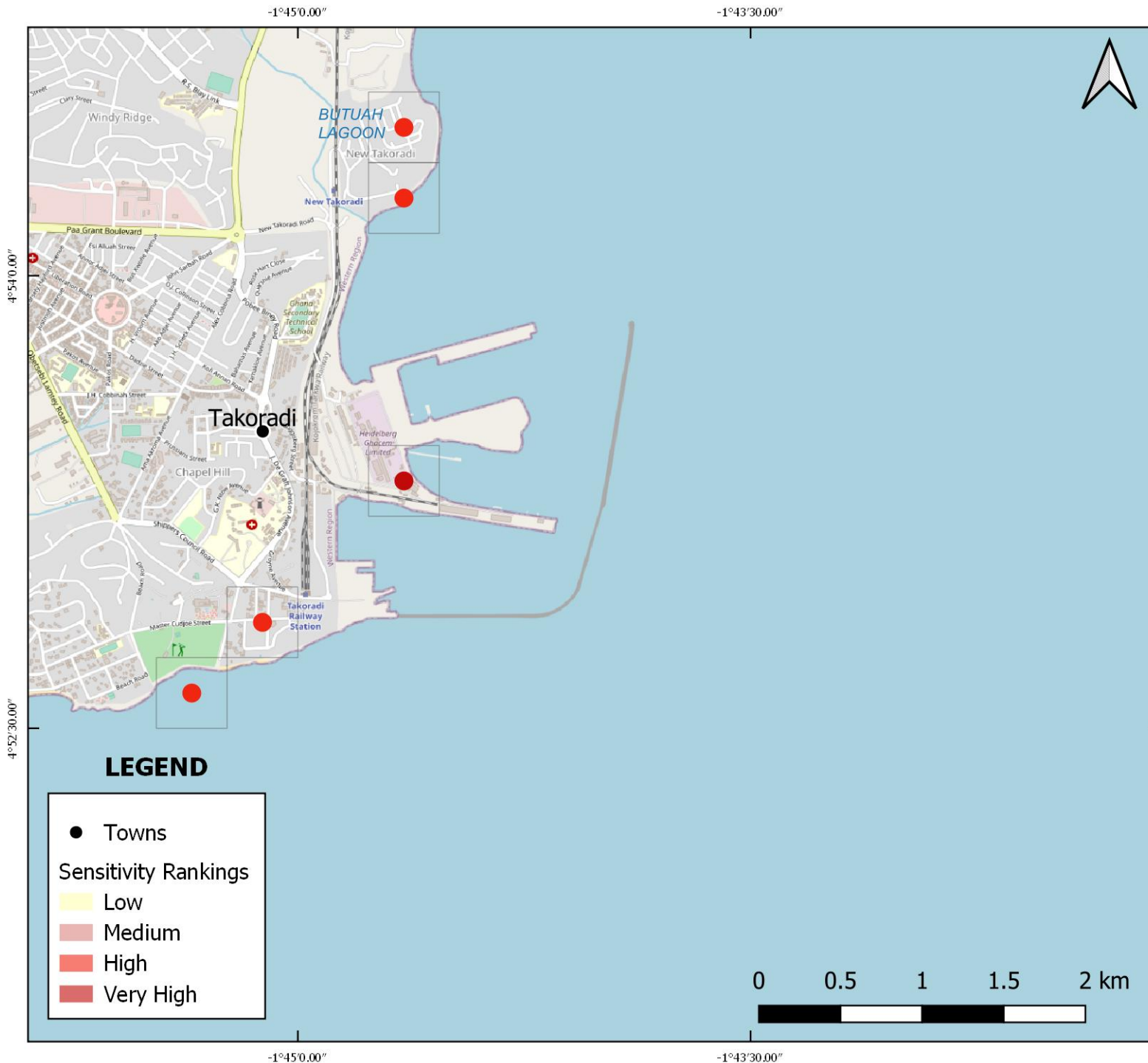
PHYSICAL ENVIRONMENT

Most of the coastline is harbour structures. West of the harbour there are rocky flats with abundant crevices (tide pools). The beach north of Takoradi harbour is fine grained sand.

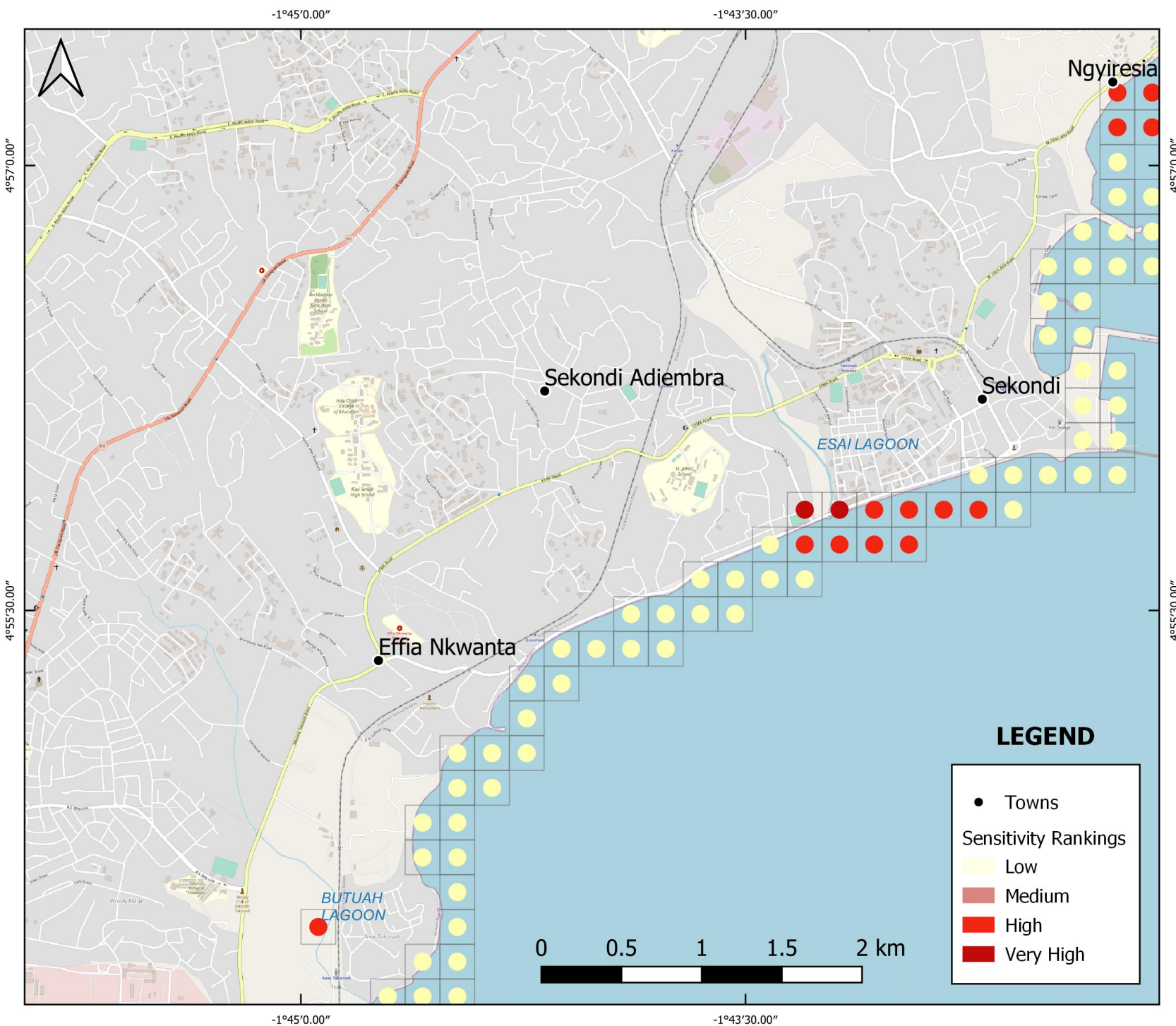
HUMAN ACTIVITY

Industrial/Domestic utilization: Takoradi harbour is the major export harbour in Ghana. In case of fire, the water in the harbour is used for firefighting.

Recreation/tourism: There are hotels at the waterfront in Takoradi. There are also recreational beaches at the waterfront.



Ecological Sensitivity Atlas Map 32



PHYSICAL ENVIRONMENT

Most of the coast is fine grained sand with low slope. There are gabions in the eastern part of the area at Sekondi. There is a lagoon in the area, the Esai lagoon. This is an open type with connection to the sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Esai Lagoon.

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

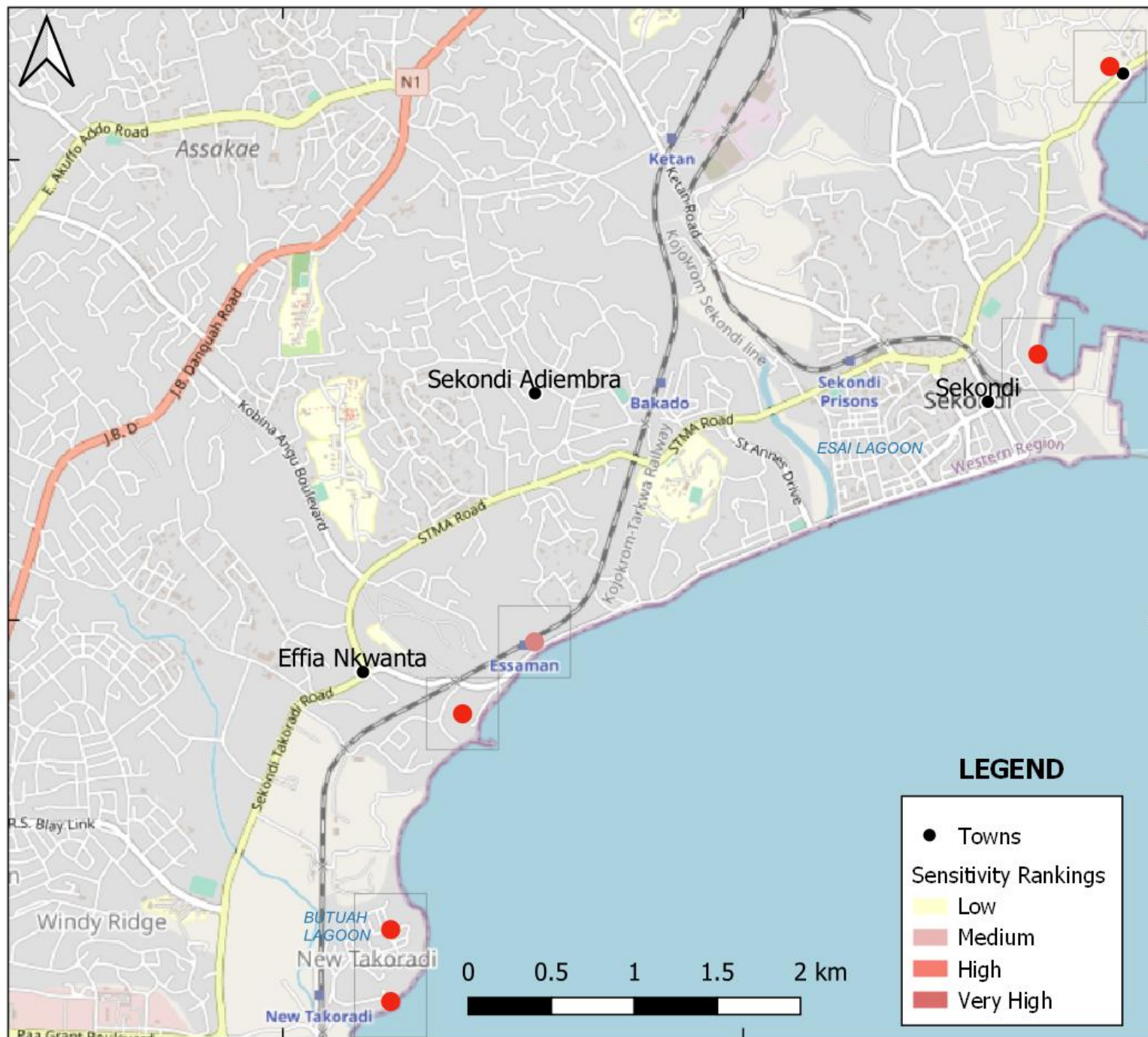
Birds: The Esai lagoon is a feeding area for waterfowl, including Little Egret, Reef heron, Great White egret, Black-winged stilt, Ringed plover and Common sandpiper.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priophthalmus kaehruti*, freshwater species such as the cichlids *Oreochromis niloticus* and *Tilapia zillii* and marine species like *Albula vulpes* and *Lutjanus fulgens*.

The lagoons are nursery grounds for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.



**Socio-economic Sensitivity Atlas
Map 32**



PHYSICAL ENVIRONMENT

Most of the coast is fine grained sand with low slope. There are gabions in the eastern part of the area at Sekondi. There is a lagoon in the area, the Esai lagoon. This is an open type with connection to the sea.

HUMAN ACTIVITY

Coastal Fishery: Mankoadze has three landing beaches namely Etsewada, Ewuraba Ntem and Kofi Krom. The main fishing gears used are set nets.

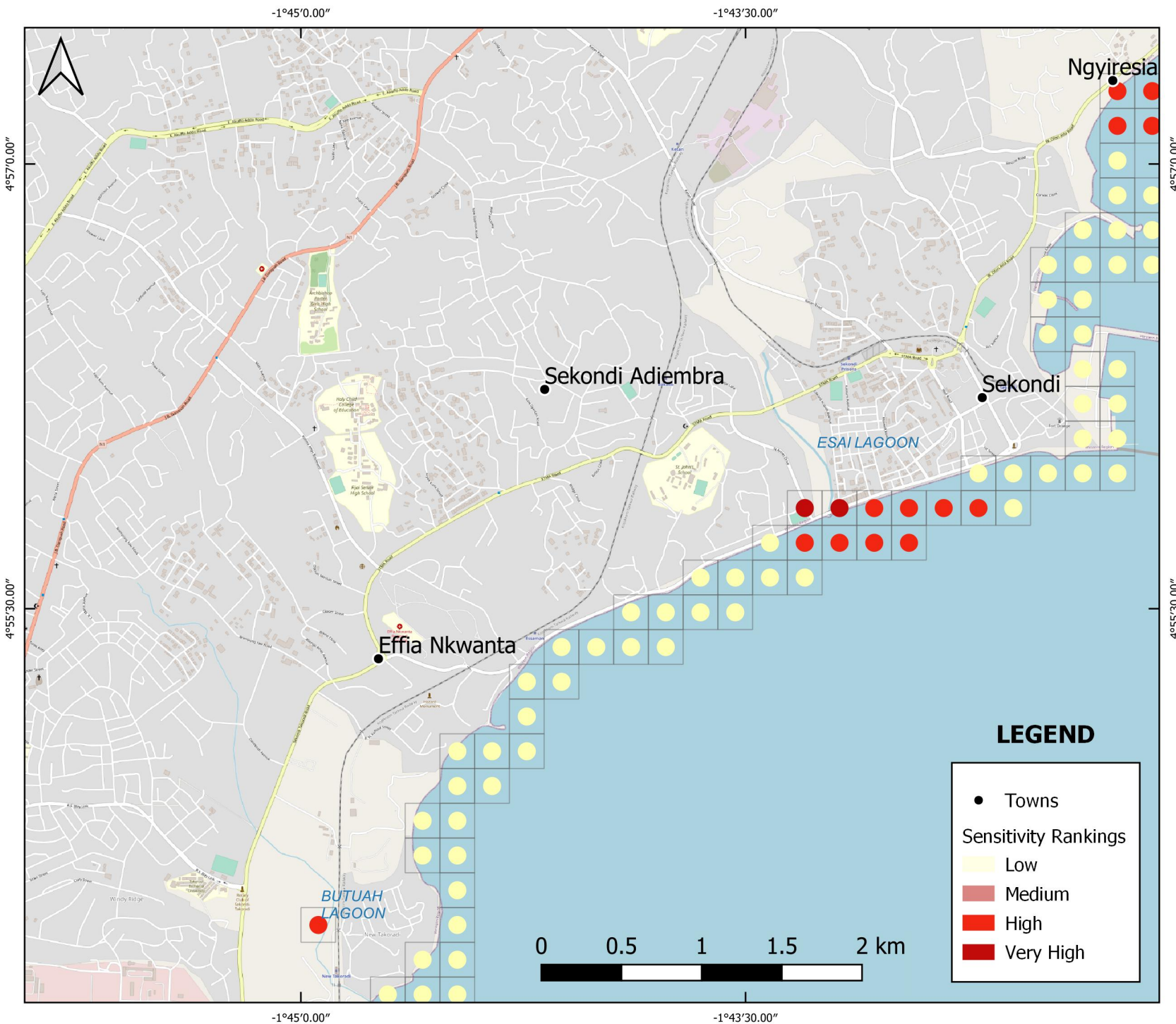
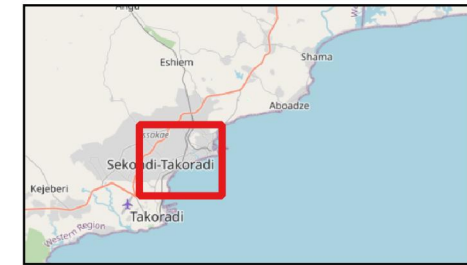
Industrial/Domestic utilization: There are saltponds in Mankaafa lagoon.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Ecological Sensitivity Atlas Map 33



PHYSICAL ENVIRONMENT

The beach is predominantly fine grained sand with low slope. There are steep exposed rocks south of Esupon and at Anankwan and at Aboadze, there are rocky flats with abundant crevices (tide pools).

ECOLOGICAL ENVIRONMENT

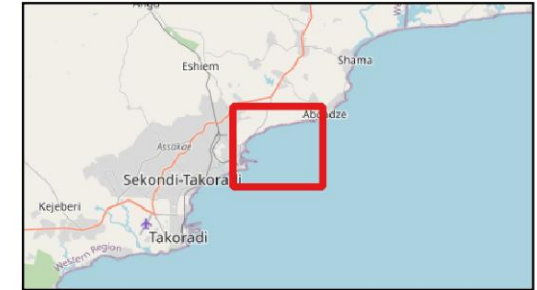
Sandy beaches generally have low species diversity. The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteris delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnium sp.*

On rocky flats with abundant crevices there are tide pools where pools of water collect in hollows and depressions of the rocks at low tide. The tide pools house a rich vegetation of algae and a diverse fauna of crabs, sea urchins and fish.

Intertidal rocks covered by abundant algal growth, which are exposed at low tide, are encountered on the coast south of Odanasi and south of Anankwari. This habitat is very important as a nursery area for fish.



Socio-economic Sensitivity Atlas Map 33



PHYSICAL ENVIRONMENT

The beach is predominantly fine grained sand with low slope. There are steep exposed rocks south of Esupon and at Anankwan and at Aboadze, there are rocky flats with abundant crevices (tide pools).

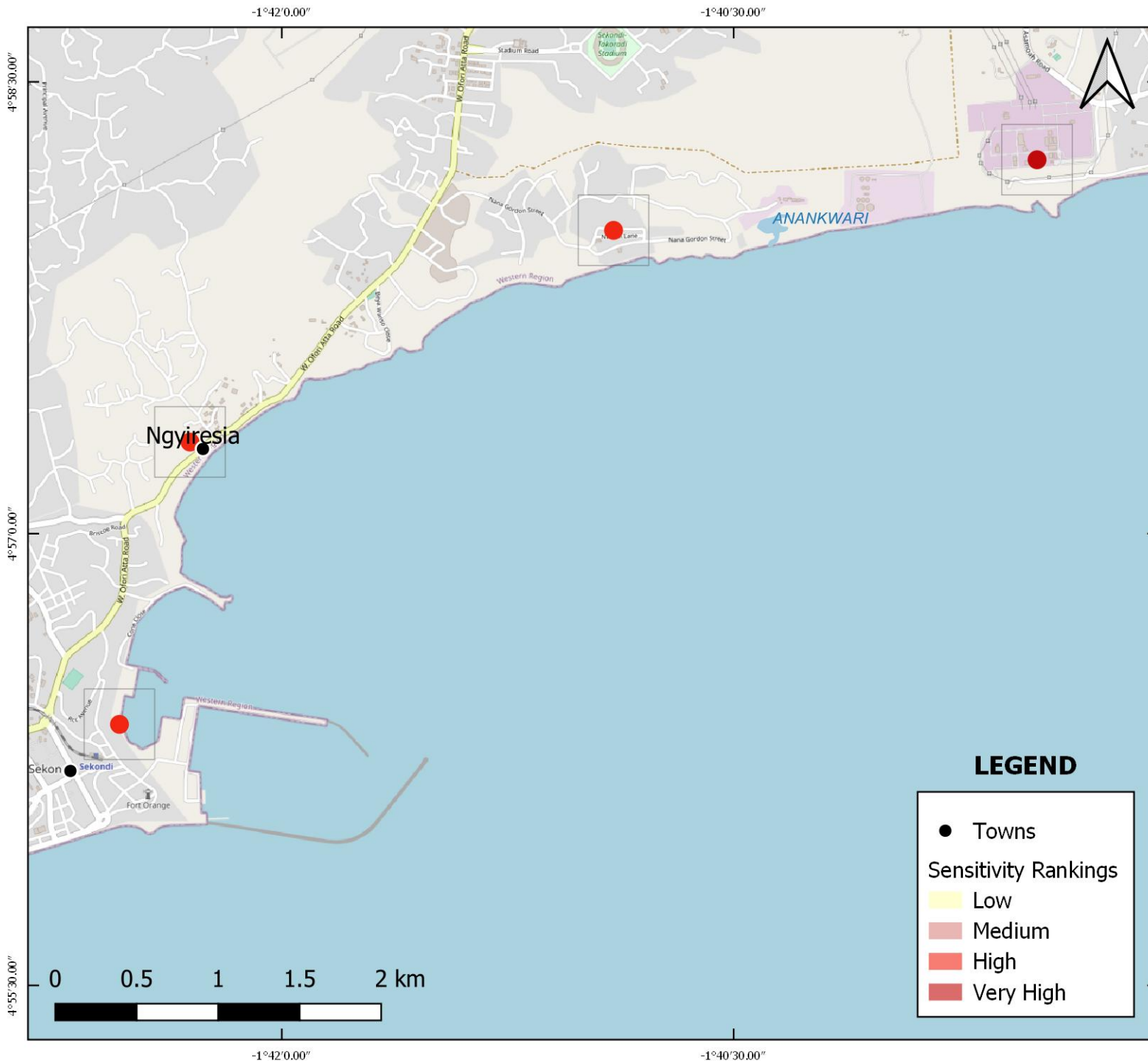
HUMAN ACTIVITY

Coastal Fishery: Ngyiresia has one landing beach and the predominant fishing method practiced is ali netting and set netting. Sekondi has one landing beach with the predominant fishing method being pursing, line fishing and ali netting.

Industrial/Domestic utilization: There is industrial extraction of saline water for power generating turbines at Anankwan.

Recreation/tourism: Fort Orange built by the Dutch in 1656 is situated in Sekondi. Today the fort is used as a lighthouse. There is a bathing beach north of the naval base.

Other: There is a naval base at Sekondi

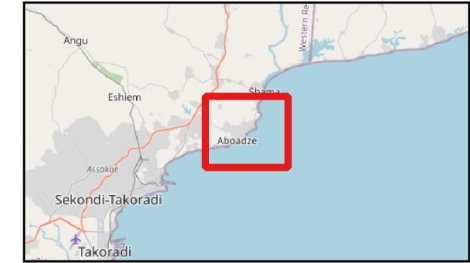


LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Ecological Sensitivity Atlas Map 34



PHYSICAL ENVIRONMENT

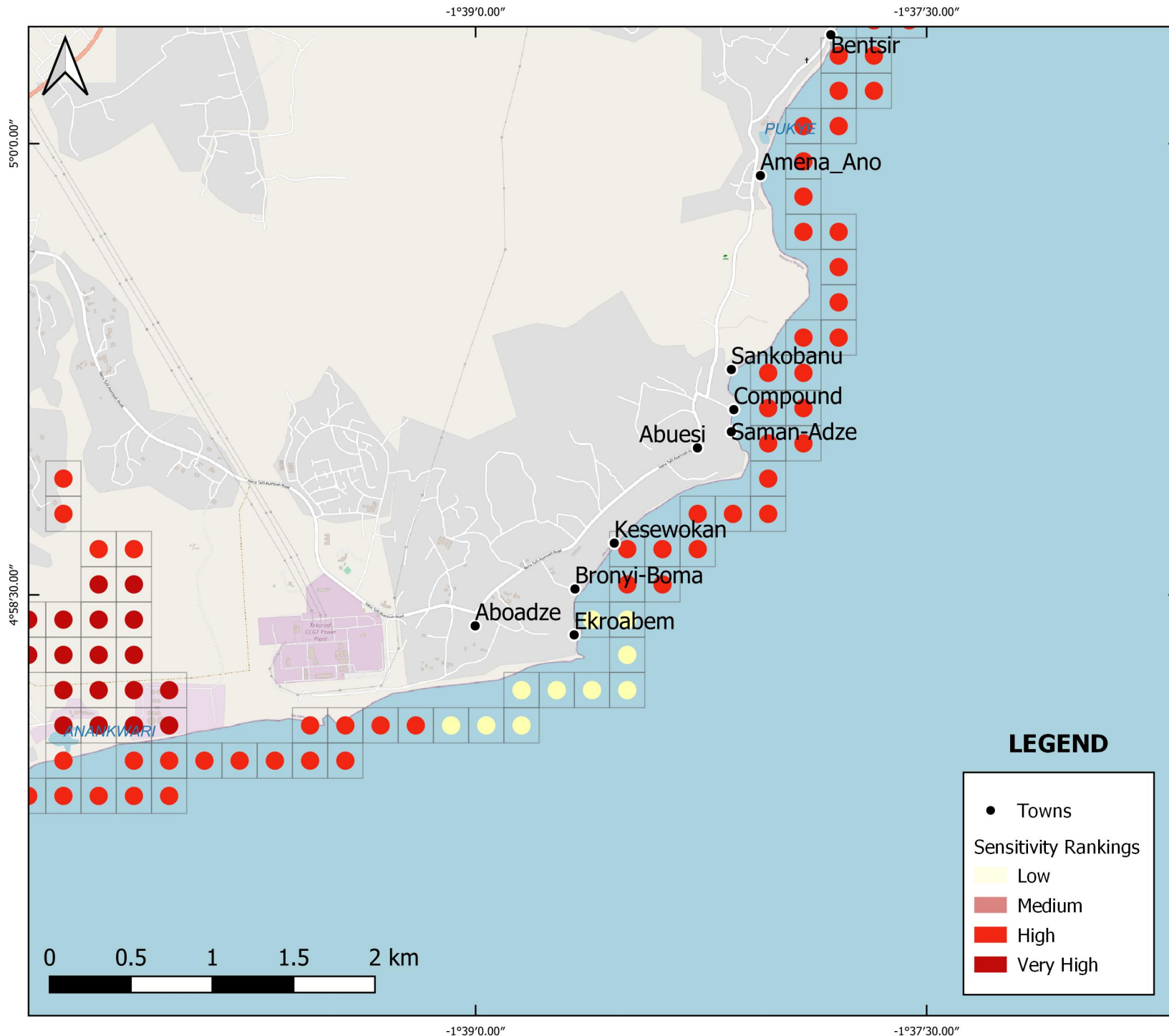
The coastline is rocky flats with abundant crevices (tide pools).

ECOLOGICAL ENVIRONMENT

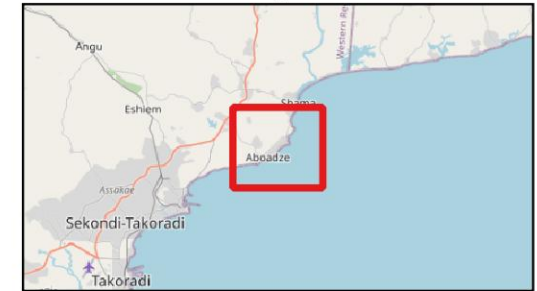
The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteria delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

On rocky flats with abundant crevices there are tide pools where pools of water collect in hollows and depressions of the rocks at low tide. The tide pools house a rich vegetation of algae and a diverse fauna of crabs, sea urchins and fish.

Intertidal rocks covered by abundant algal growth which are exposed at low tide are encountered in the western part of the area and along the whole coast from Aboadze to beyond Amenanu. This habitat is very important as a nursery area for fish.



Socio-economic Sensitivity Atlas Map 34



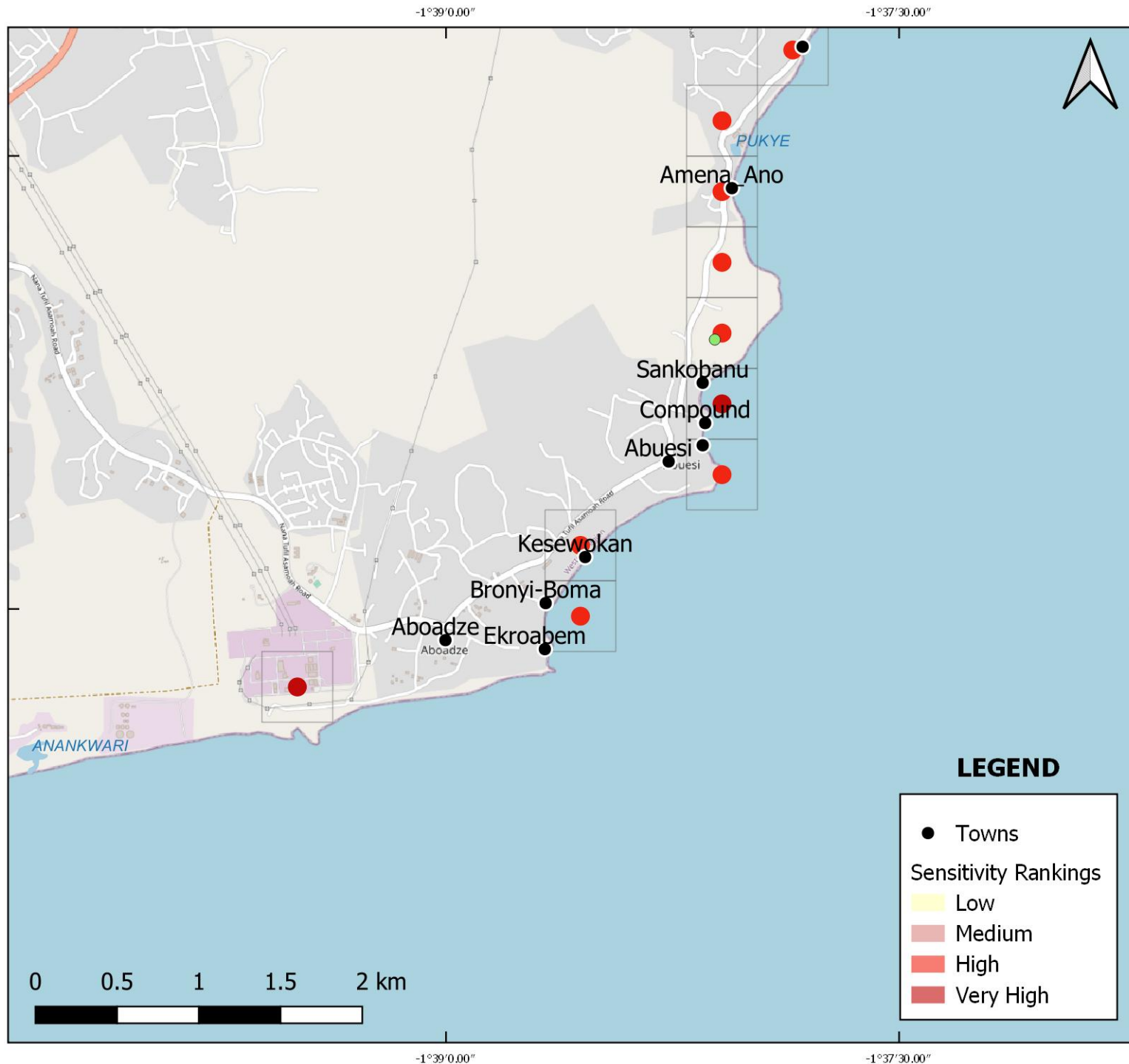
PHYSICAL ENVIRONMENT

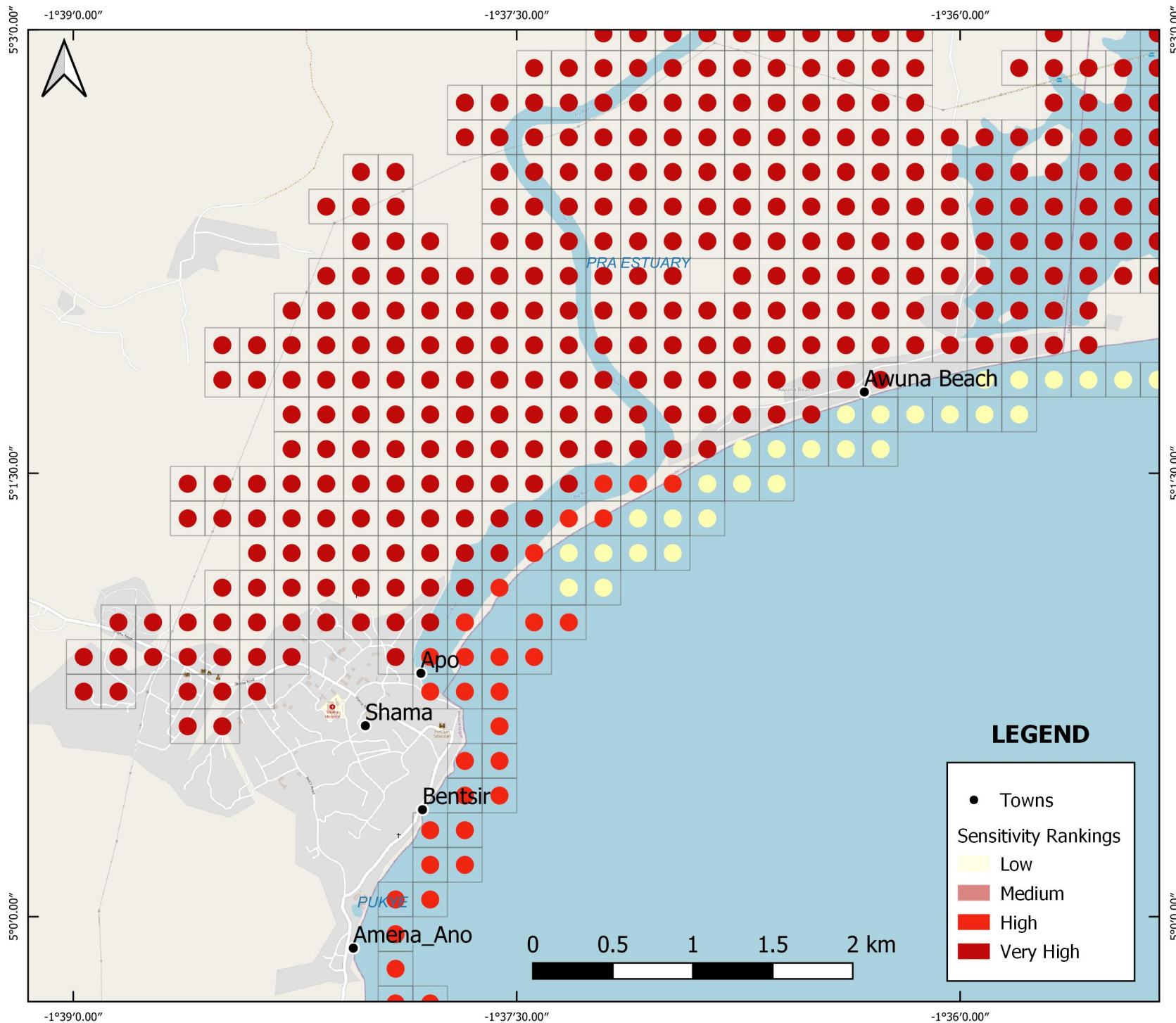
The coastline is rocky flats with abundant crevices (tide pools).

HUMAN ACTIVITY

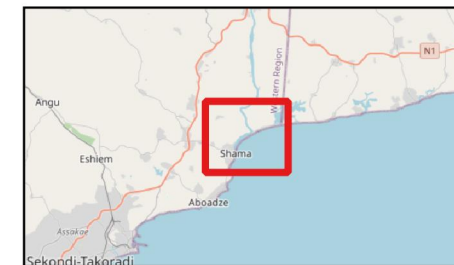
Coastal Fishery: Aboadze has two landing beaches one at Bronyi-Boma and one at Aboadze. The predominant fishing methods used at Bronyi-Boma are purse seining, set nets and ali nets. Aboadze has three landing beaches, i.e. at Abuesi, Sam-Adze and Compound. The main fishing method practiced is purse seining and ali netting.

Industrial/Domestic utilization: There is an industrial water intake at Aboadze.





Ecological Sensitivity Atlas Map 35



PHYSICAL ENVIRONMENT

The Pra estuary is located here. There are rocky flats with abundant crevices (tide pools) south of the mouth of the estuary. The remaining coast is coarse sand.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity. The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Sargassum vulgare*, *Dictyopterus delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnium sp.*

On rocky flats with abundant crevices there are tide pools where pools of water collect in hollows and depressions of the rocks at low tide. The tide pools house a rich vegetation of algae and a diverse fauna of crabs, sea urchins and fish.

Intertidal rocks covered by abundant algal growth which are exposed at low tide are encountered in the southern part of the area off Pukye Lagoon and off the mouth of Pra estuary. This habitat is very important as a nursery area for fish.

Pra estuary

Birds: A number of birds are found in the Pra estuary, including Little egret, Grey heron, Great white egret, Whimbrel, Grey plover, Common sandpiper and Cormorants.

Fish and crustaceans: Pra estuary is an important nursery area for fish and shrimps. Estuarine fish include the tarpon *Megalops*, the shad *Ethmalosa dorsalis*, the long finned herring *Ilisha melanota*, the ten-pounder *Elops lacerta*, the barracuda *Sphyraena guachancho*, the tongue sole *Cynoglossus senegalensis*, the burro fish *Pomadourus jubelini*, the burrito *Brachydeuterus auritus* and the threadfin *Pentanemus quinquarius*.



Socio-economic Sensitivity Atlas Map 35



PHYSICAL ENVIRONMENT

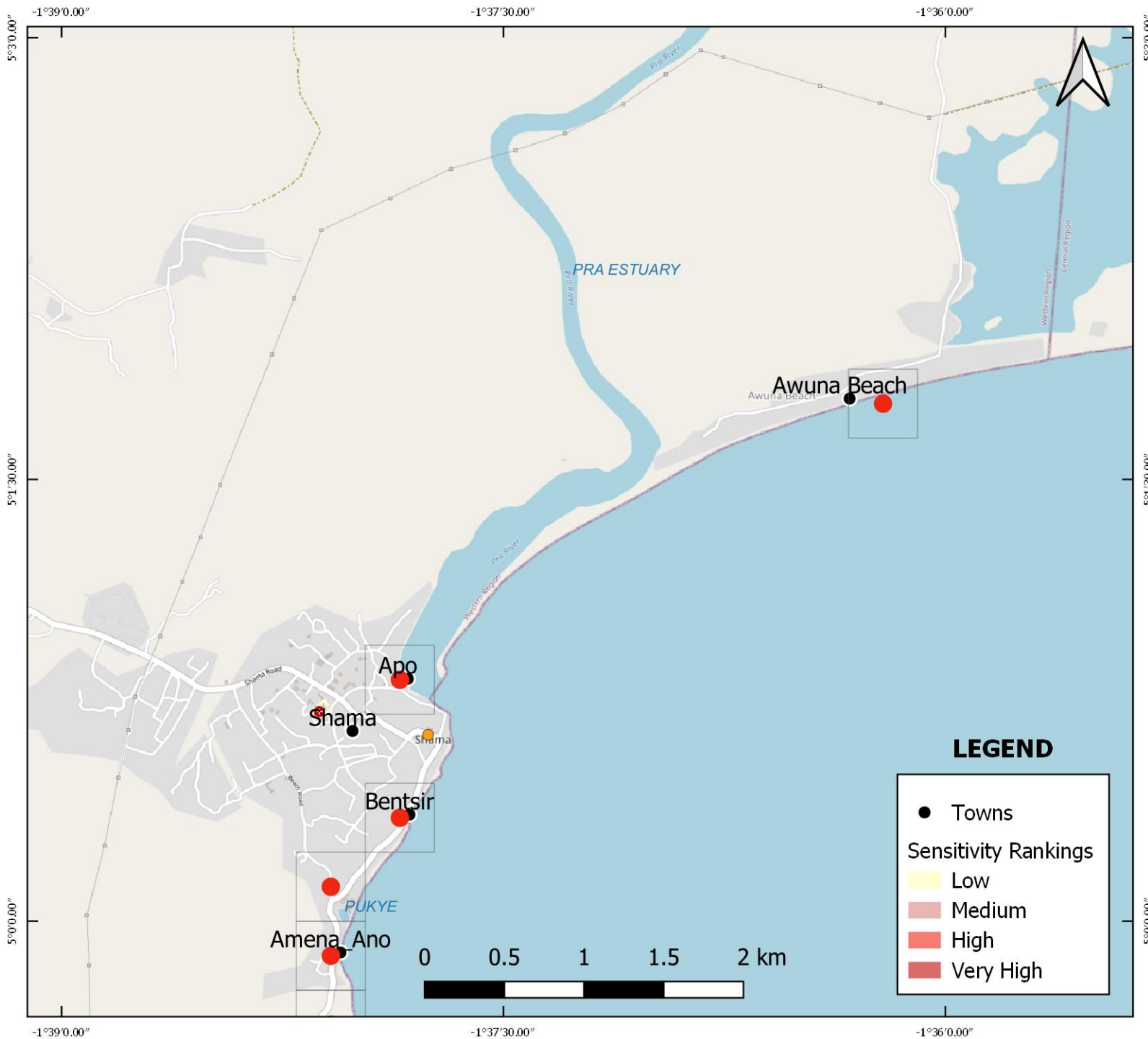
The Pra estuary is located here. There are rocky flats with abundant crevices (tide pools) south of the mouth of the estuary. The remaining coast is coarse sand.

HUMAN ACTIVITY

Coastal Fishery: Shama has four fish landing beaches situated at Awunakrom, Apo, Bentsir and Amena-Ano. The dominant fishing method is nifa nifa with set nets and ali nets used to a lesser extent.

Industrial/Domestic utilization: Water is extracted for copra oil production. Water for domestic use by communities along the Pra estuary is extracted within the range of influence of the high tide.

Recreation/tourism: There is an old fort at Shama, the Fort St. Sebastian. The fort was built by the Portuguese in 1523.



LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High

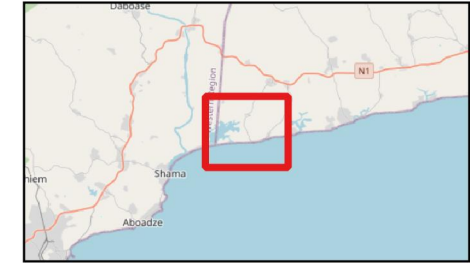


-1°36'0.00"

-1°34'30.00"

-1°33'0.00"

Ecological Sensitivity Atlas Map 36

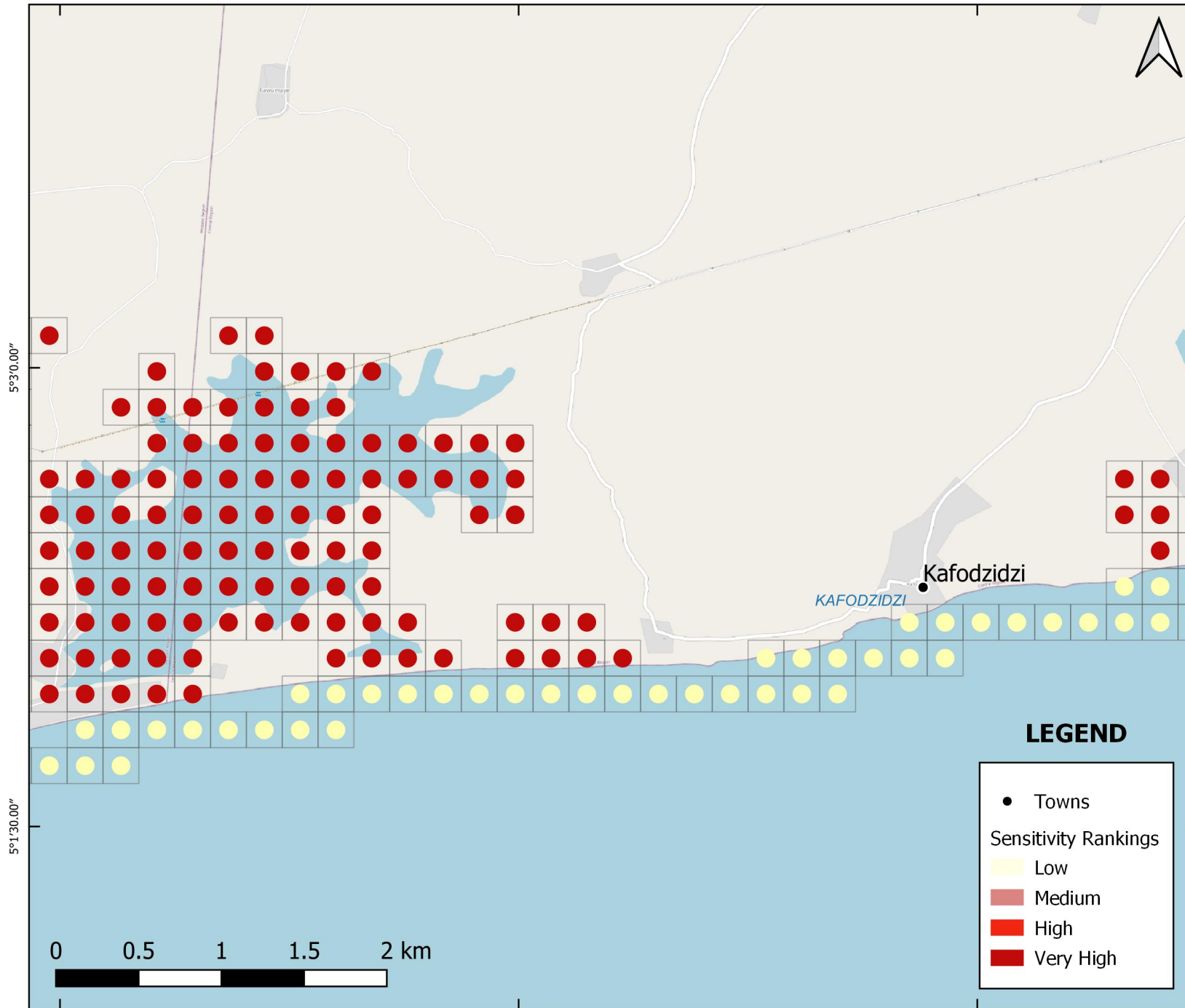


PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.



LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High

5°1'30.00"

5°3'0.00"

5°1'30.00"

-1°36'0.00"

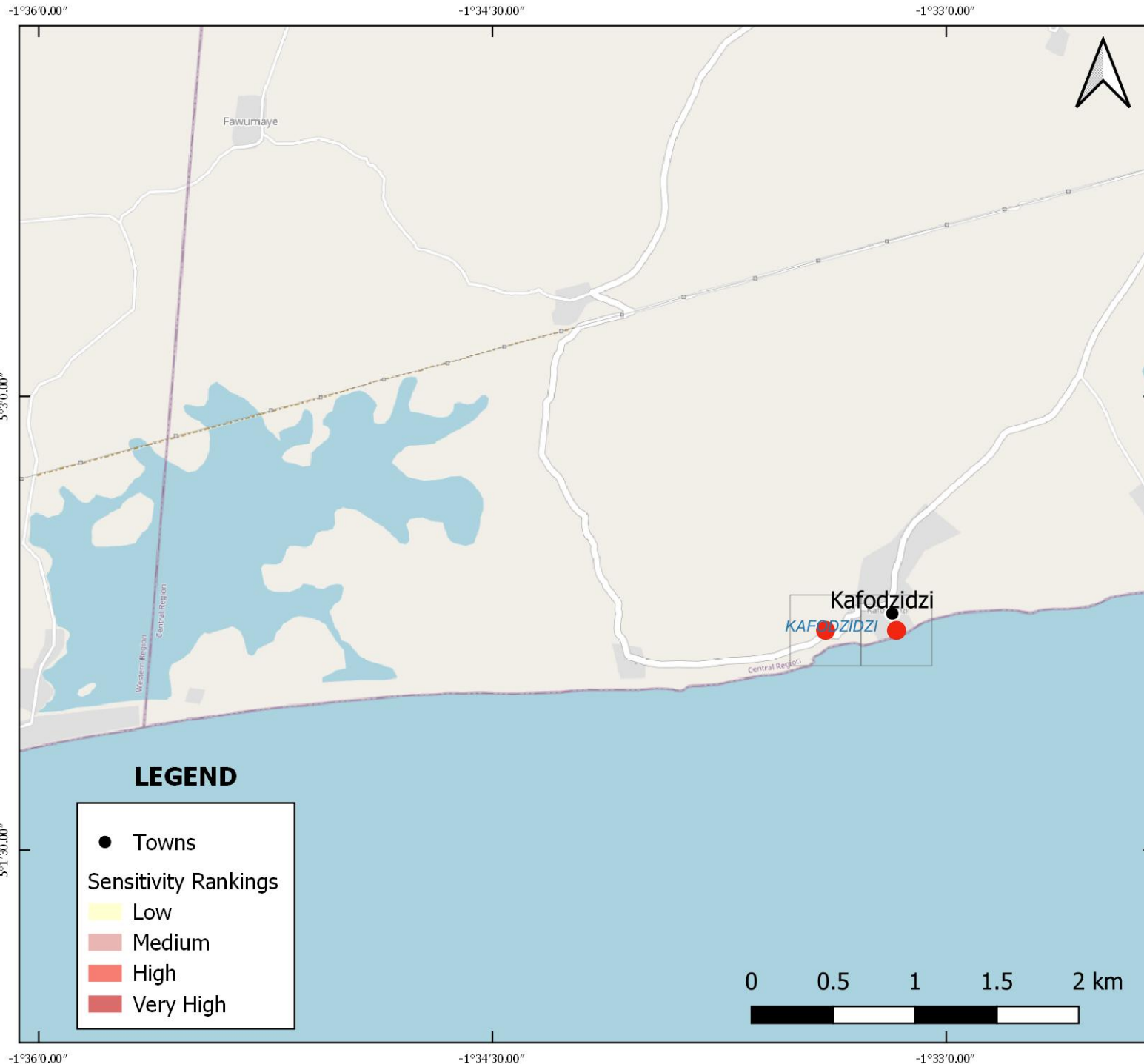
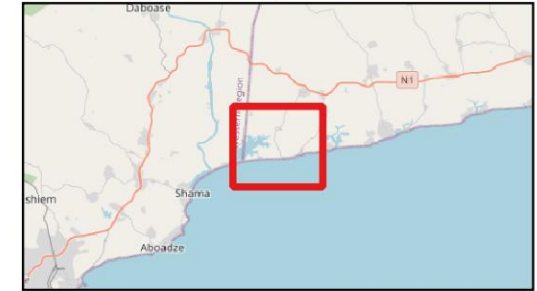
-1°34'30.00"

-1°33'0.00"



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development Programme (OfD). All Rights Reserved.

**Socio-economic Sensitivity Atlas
Map 36**



PHYSICAL ENVIRONMENT

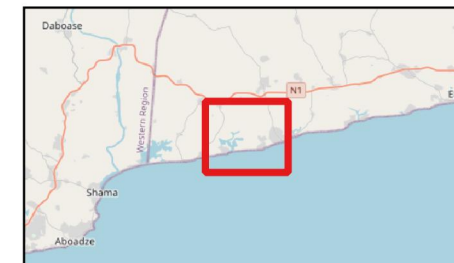
The beach is coarse sand with a moderate slope.

HUMAN ACTIVITY

Coastal Fishery: There is a fish landing site at Kafodzidzi



Ecological Sensitivity Atlas Map 37



PHYSICAL ENVIRONMENT

The Abrobeano lagoon is semi-closed and seasonally open to the sea. East of the lagoon there is an area with fine grained sand. West of the Lagoon the beach is coarse sand with moderate slope. At Komenda there are rocks with low-moderate slope.

ECOLOGICAL ENVIRONMENT

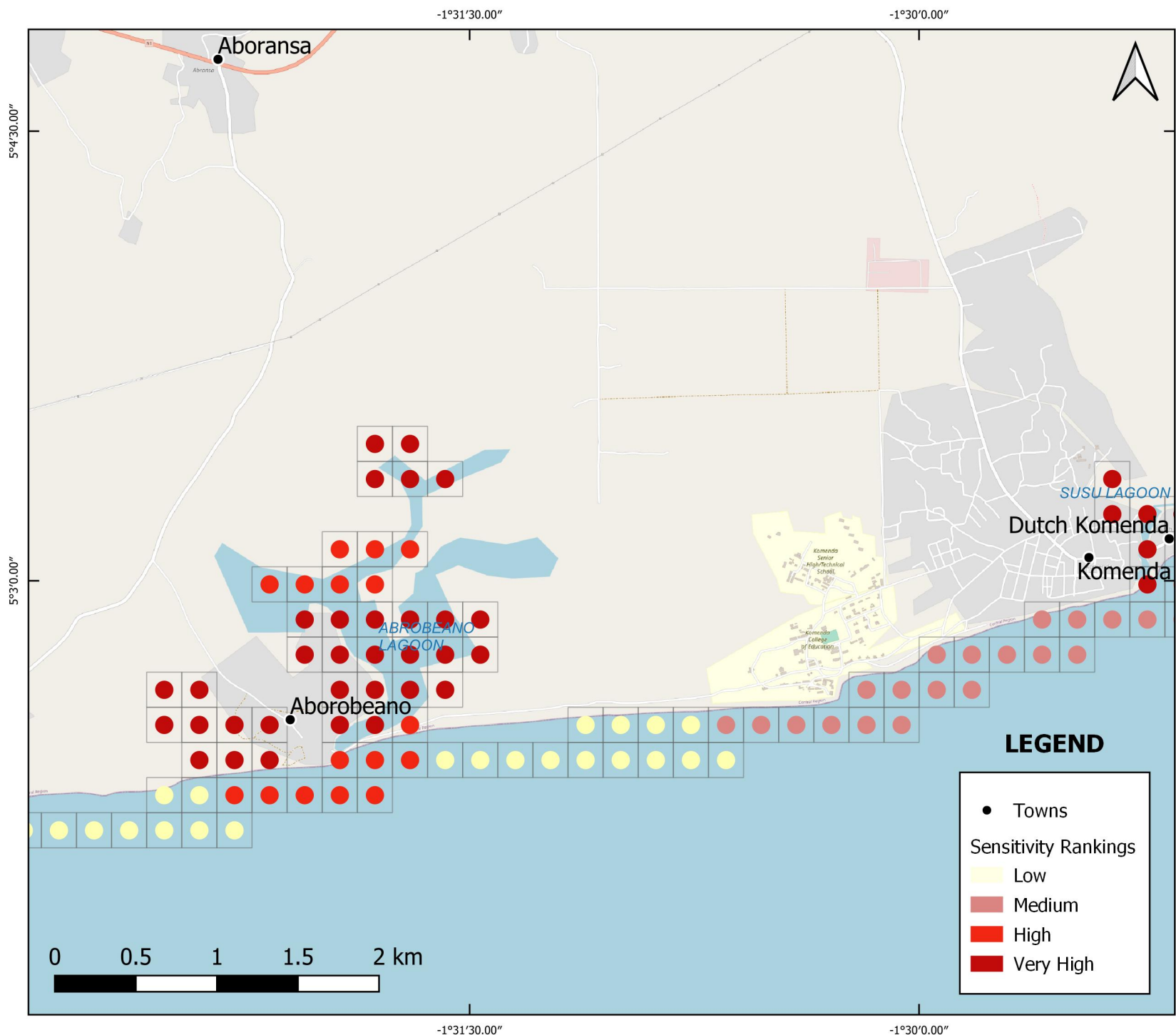
Sandy beaches generally have low species diversity. The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteris delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnium sp.*

Abrobeano Lagoon

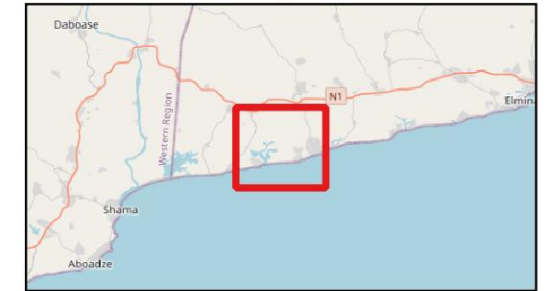
Birds: Abrobeano lagoon is a feeding site for waterfowl, including Little egret, Grey heron, Great white egret, Whimbrel, Grey plover, Common Sandpiper and Cormorants.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priophthalmus kaelruti*, freshwater species such as the tilapias *Oreochromis niloticus* and *Tilapia zillii*, and when the lagoon is open marine species such as *Albula vulpes* and *Lutjanus fulgens*.

When open, the lagoon is a nursery area for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.



Socio-economic Sensitivity Atlas Map 37

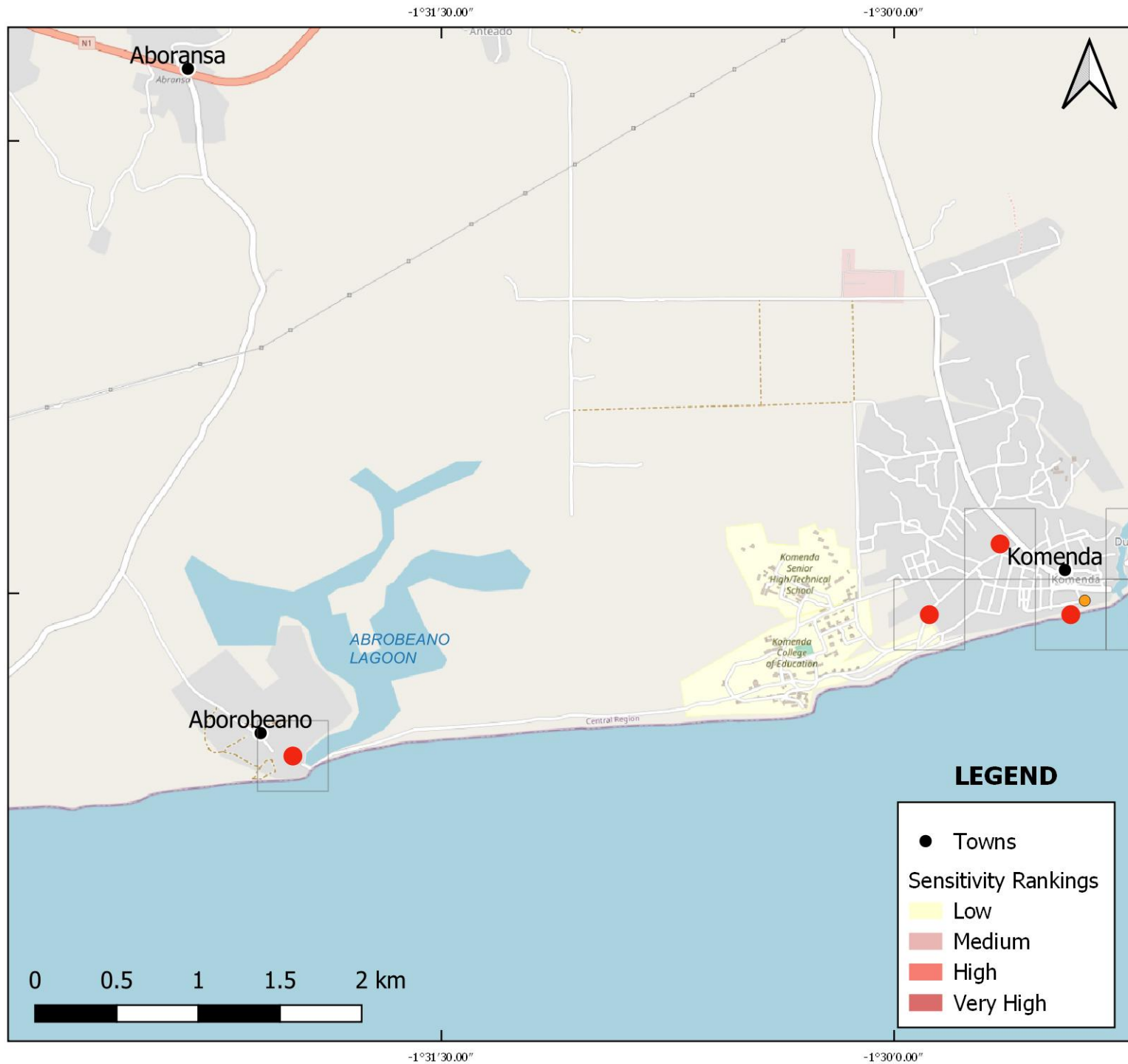


PHYSICAL ENVIRONMENT

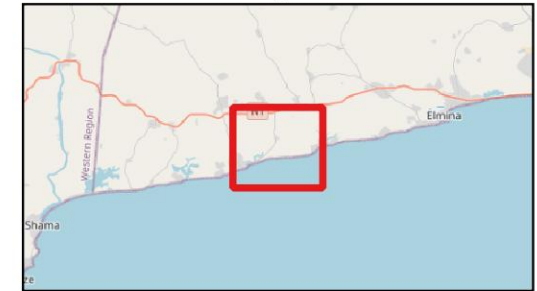
The Abrobeano lagoon is semi-closed and seasonally open to the sea. East of the lagoon there is an area with fine grained sand. West of the Lagoon the beach is coarse sand with moderate slope. At Komenda there are rocks with low-moderate slope.

HUMAN ACTIVITY

Coastal Fishery: There are fish landing sites at Abrobeano and Komenda.
Other: There is extensive pineapple farming around the Abrobeano lagoon



Socio-economic Sensitivity Atlas Map 38



PHYSICAL ENVIRONMENT

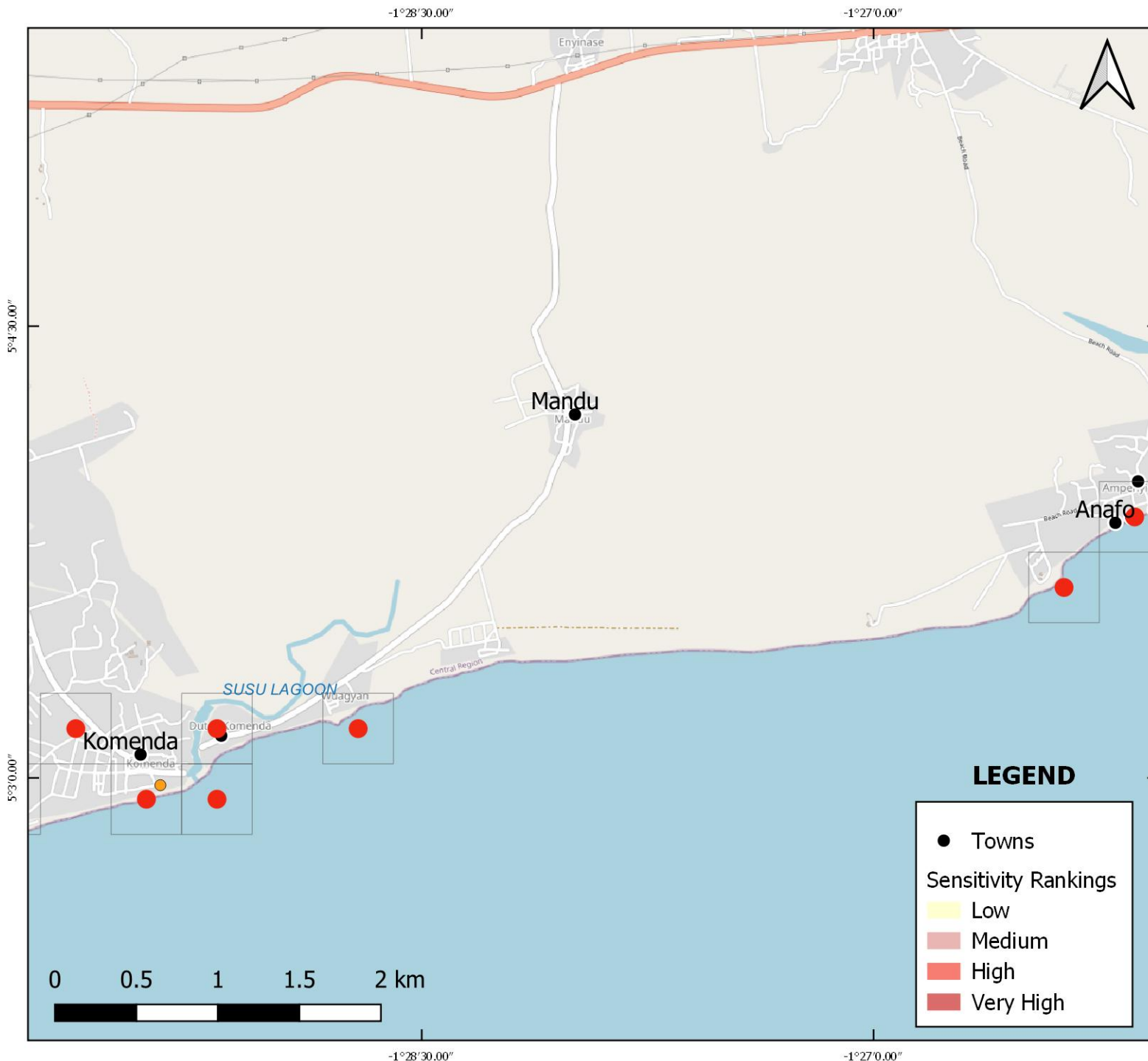
The Abrobeano lagoon is semi-closed and seasonally open to the sea. East of the lagoon there is an area with fine grained sand. West of the Lagoon the beach is coarse sand with moderate slope. At Komenda there are rocks with low-moderate slope.

HUMAN ACTIVITY

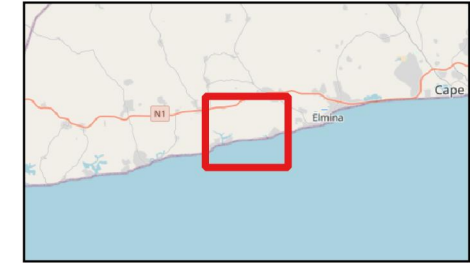
Coastal Fishery: District Komenda has five landing beaches at Awona beach, Kankam, Ewugu, Baka Ano and Abrobeano. The main fishing methods are ali and set nets.

Industrial/Domestic utilization: There is an industrial water intake in Komenda.

Recreation/tourism: There are two historical ruins in Komenda. The remains of Fort Vreedeberg and Fort English built by the Dutch in 1682 and 1687 respectively. There is also a bathing beach east of the town.



Ecological Sensitivity Atlas Map 39



PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with moderate slope. To the east at Ankwanda there are exposed rocks with low to moderate slope. There are two lagoons in the area. The Brenu Lagoon, which is a semi-closed lagoon seasonally open to the sea and the Mpopro, which is closed and without connection to the sea. The Mpopro will therefore not be affected by an oil spill at sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity. The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteris delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnium sp.*

Brenu Lagoon

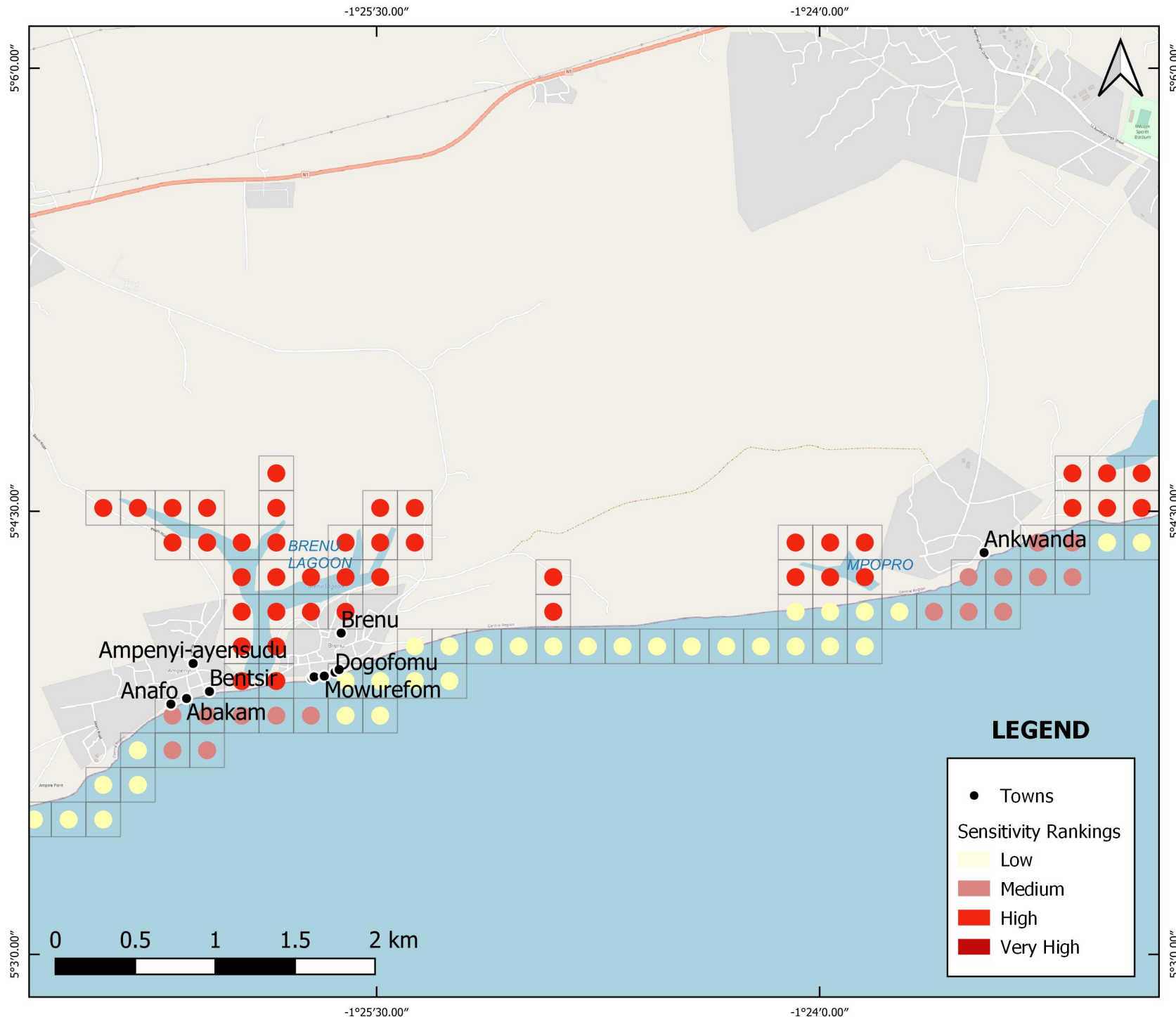
The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Vegetation: There are mangroves around the Brenu Lagoon.

Birds: The lagoon is a feeding site for water birds including Reef heron, Grey heron, Great white egret, Cormorants, Greenshank, Black-winged stilt, Ringed plover and Grey plover.

Fish and crustaceans: The fish fauna include true lagoon species such as *Sarotherodon melanotheron* and the mudskipper *Priopthalmus kaelruti*, freshwater species like *Oreochromis niloticus* and *Tilapia zillii*, and when the lagoon is open, marine species like *Albula vulpes* and *Lutjanus fulgens*.

When open, the lagoon is a nursery ground for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.



5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

5°3'0.00"

5°6'0.00"

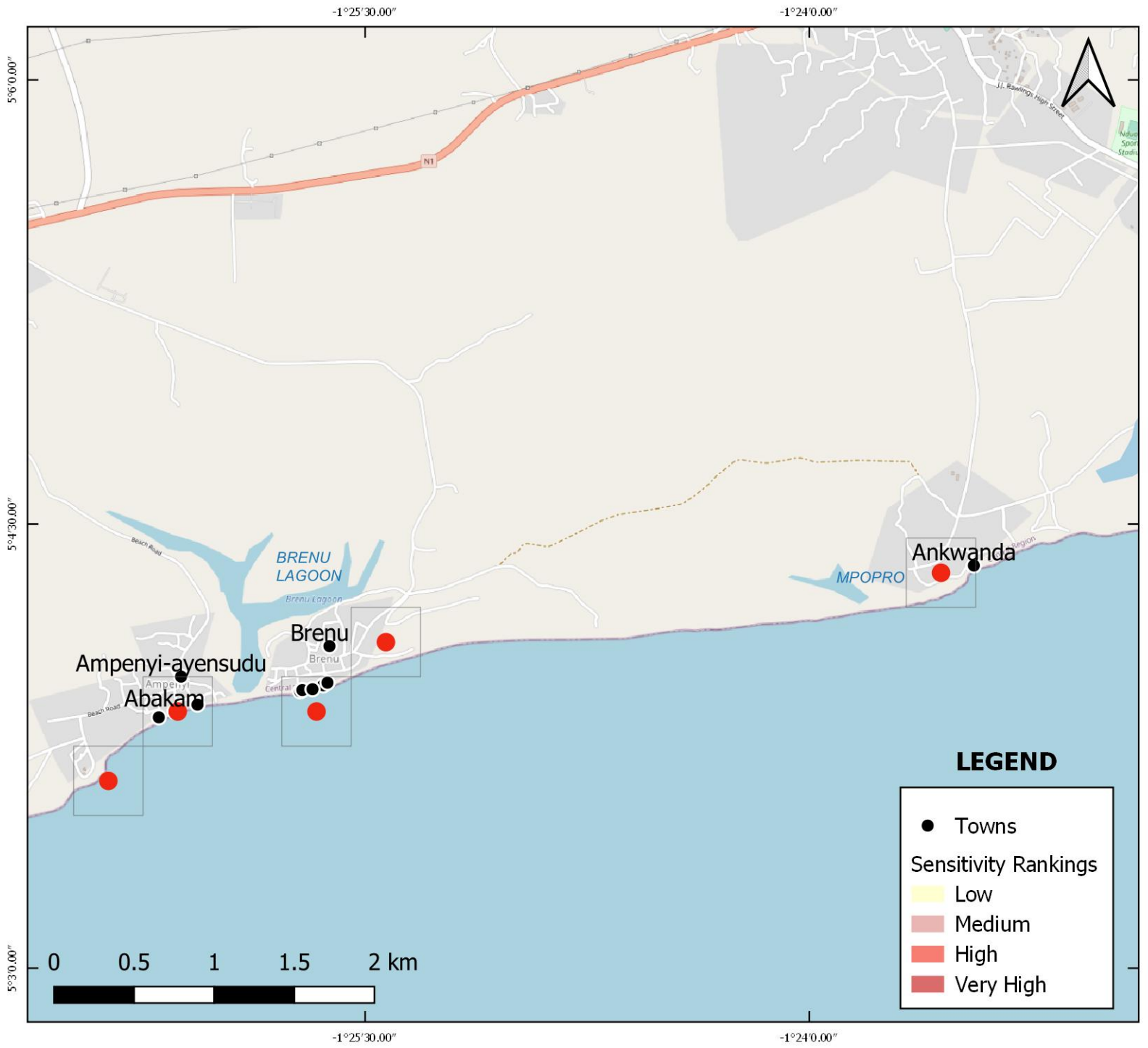
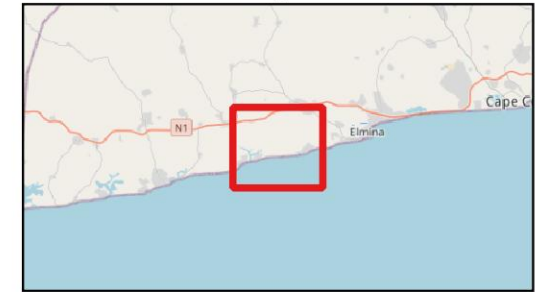
5°3'0.00"

5°6'0.00"

5°3'0.00"

5

**Socio-economic Sensitivity Atlas
Map 39**



PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with moderate slope. To the east at Ankwanda there are exposed rocks with low to moderate slope. There are two lagoons in the area. The Brenu Lagoon, which is a semi-closed lagoon seasonally open to the sea and the Mpopro, which is closed and without connection to the sea. The Mpopro will therefore not be affected by an oil spill at sea.

HUMAN ACTIVITY

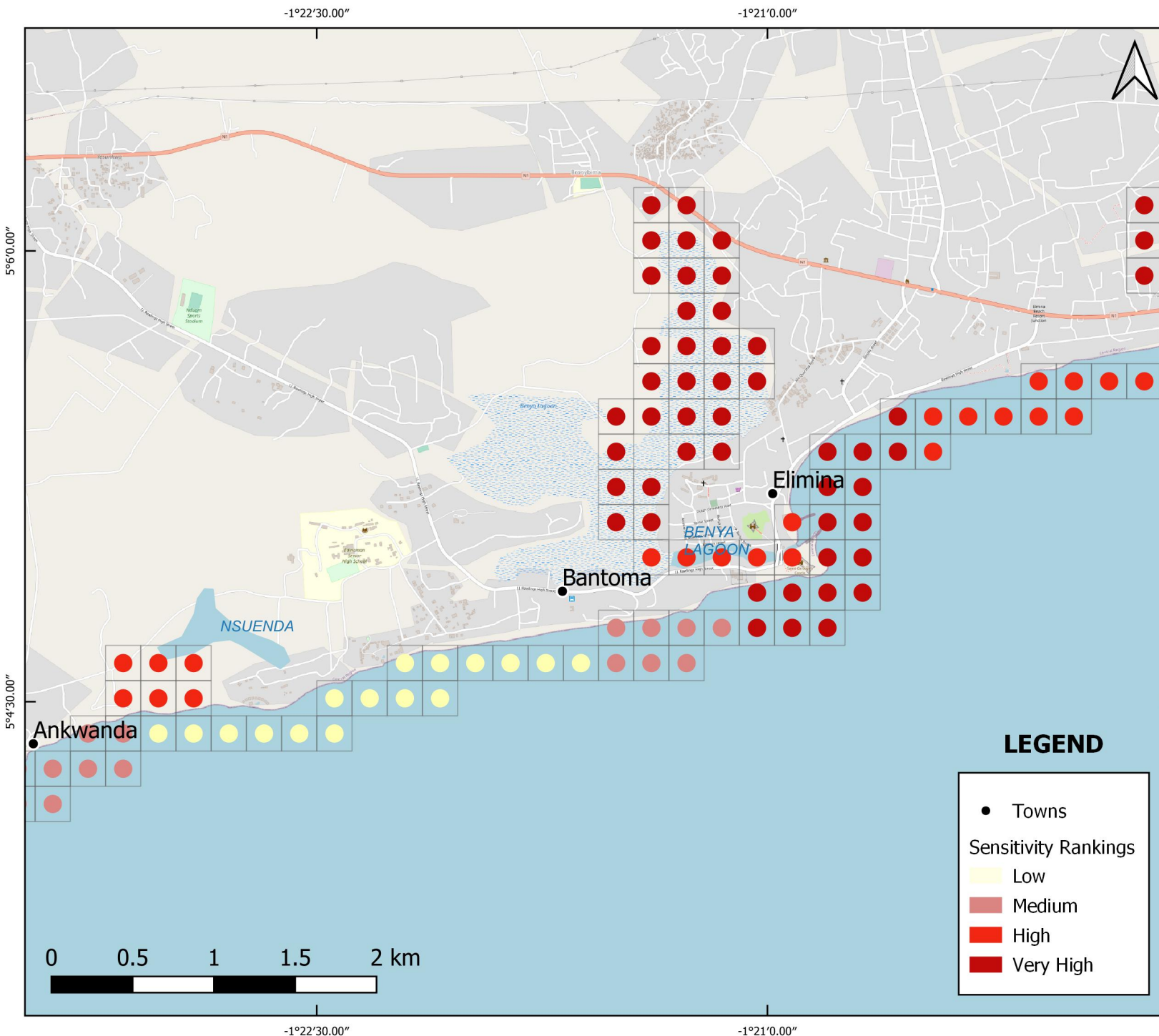
Coastal Fishery: Ampenyin has four landing sites located at Anafo, Abakam, Bentsir and Berekesemu. The dominant fishing method is set nets. Brenu Akyinmu has three landing beaches situated at Dogofomu, Abease and Brofo Mpoano. Ankwanda has one landing beach at Ankwanda Mpoano. The dominant fishing method is set nets.

Industrial/Domestic utilization: There are salt ponds at Brenu lagoon. Water is abstracted for salt production.

Recreation/tourism: There is a recreational beach east of Brenu Akyinim



Ecological Sensitivity Atlas Map 40



PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with moderate slope. Around Elmina and west of Elmina there is exposed rock with low to moderate slope. There are two lagoons in the area, the Nsueda lagoon and Benya Lagoon. Nsueda lagoon is a closed lagoon and will therefore not be affected by an oil spill at sea. Benya Lagoon, which is situated in Elmina, is an open lagoon with permanent connection to the sea. It covers an approximate area of 4.5km² (450 ha)

ECOLOGICAL ENVIRONMENT

The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteria delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnium sp.*

Intertidal rocks covered by abundant algal growth which is exposed at low tide is encountered east of Elmina. This habitat is very important as a nursery area for fish.

Benya Lagoon

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Vegetation: There is a narrow band of mangrove along Benya lagoon. The main species include the mangroves *Avicennia germinans* and *Rhizophora sp.* and the mangrove associate *Cornocarpus erectus*.

Bird: Benya lagoon (Elmina Salt Pans) is a fairly important bird site.

Fish and crustaceans: Benya lagoon is nursery area for fish and shrimp. The fauna includes many marine fish species such as *Mugil cephalus*, *Ethmalosa sp.*, *Caranx sp.*, *Sardinella sp.*, the brackish water tilapia *Sarotherodon melanotheron* and the mudskipper *Periophthalmus papillo*. Crustaceans include prawns *Penaeus sp.*, fiddler crabs and swimming lagoon crabs.

Other fauna: Other fauna include the mangrove oyster, gastropods *Nerita sp* and *Tympanotomus sp* and barnacles *Balanus amphitrite*.

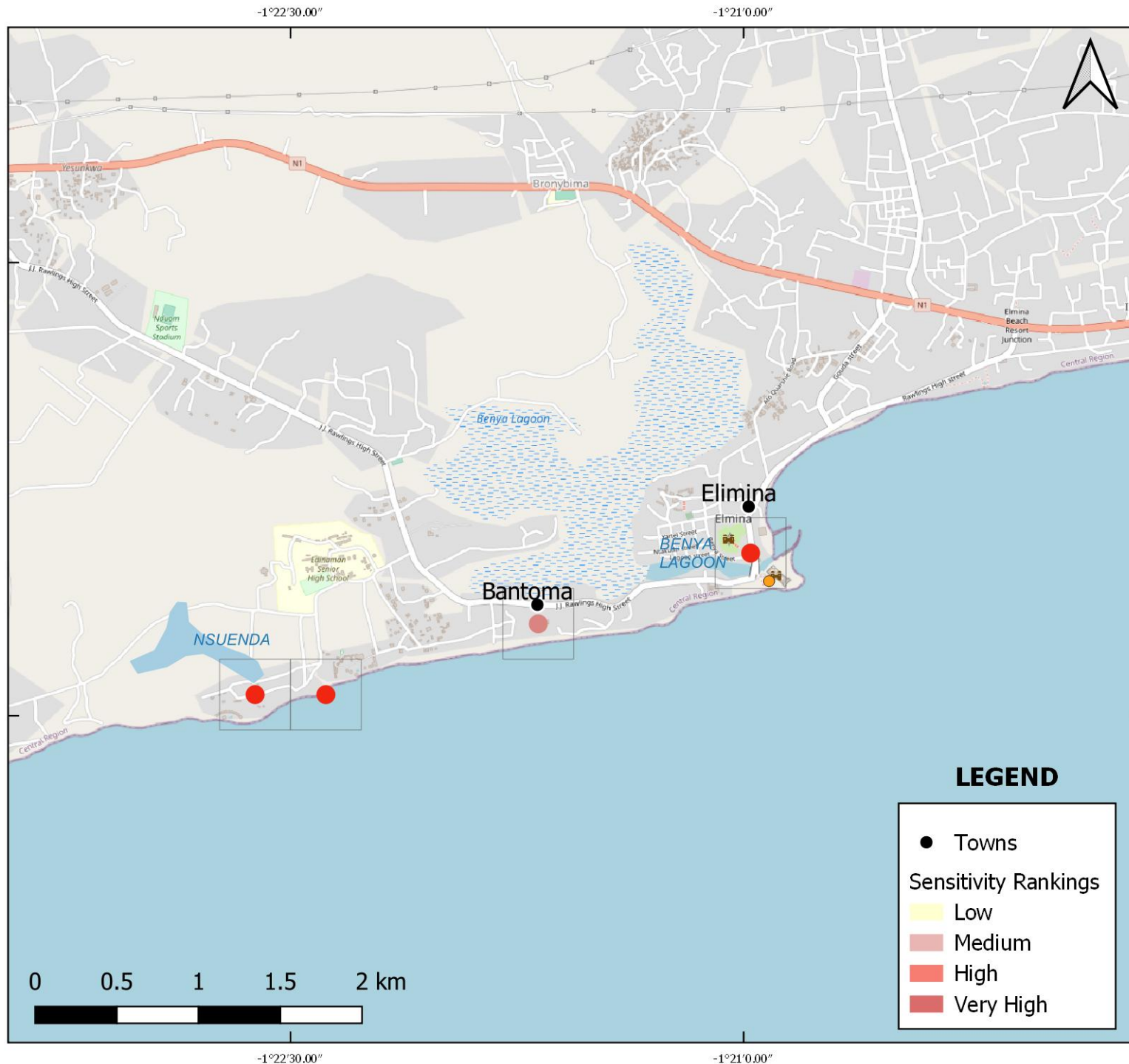
LEGEND

- Towns

Sensitivity Rankings

- Low
- Medium
- High
- Very High

Socio-economic Sensitivity Atlas Map 40



PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with moderate slope. Around Elmina and west of Elmina there is exposed rock with low to moderate slope. There are two lagoons in the area, the Nsuneda lagoon and Benya Lagoon. Nsuneda lagoon is a closed lagoon and will therefore not be affected by an oil spill at sea. Benya Lagoon, which is situated in Elmina, is an open lagoon with permanent connection to the sea. It covers an approximate area of 4.5km² (450 ha)

HUMAN ACTIVITY

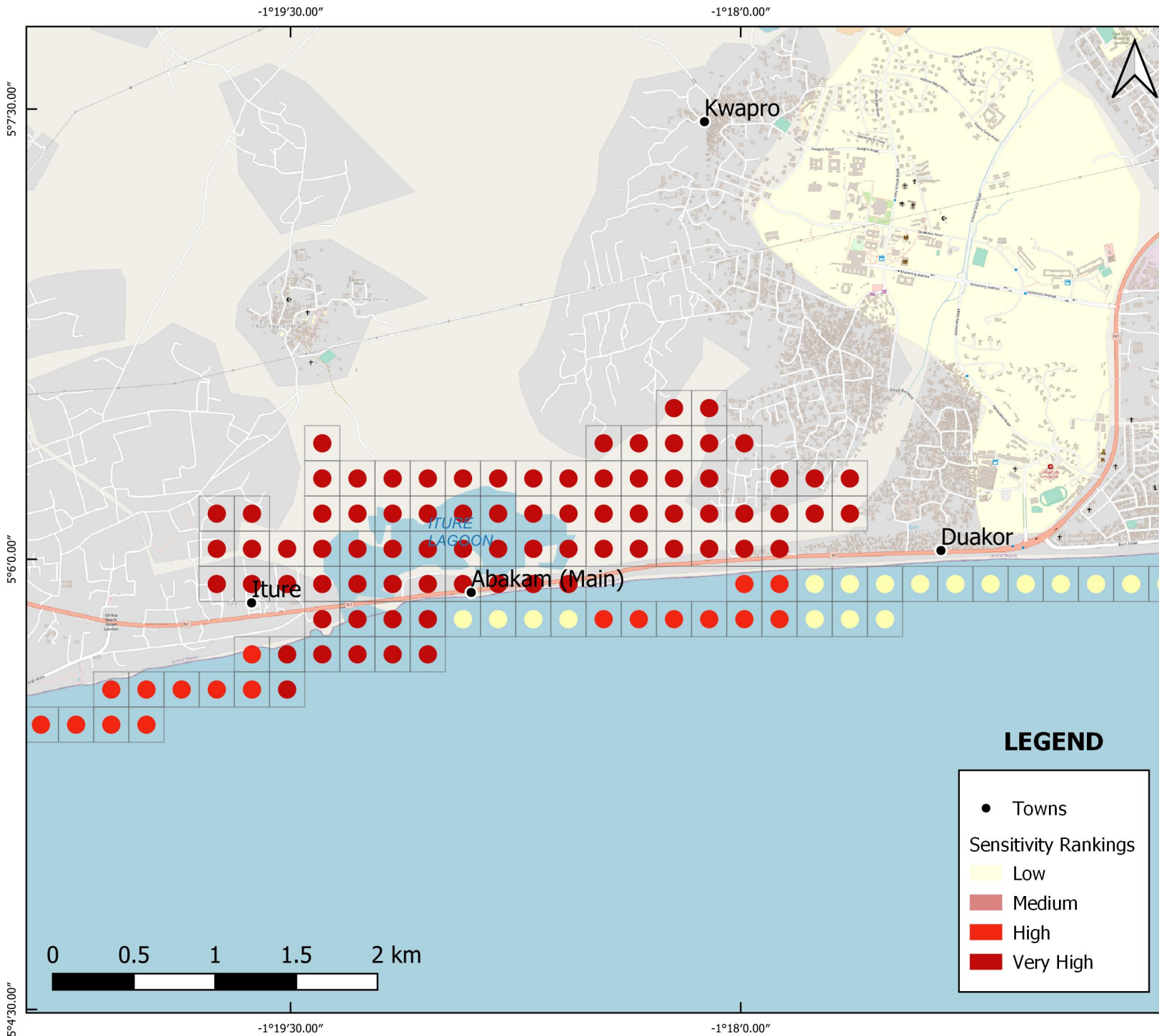
Coastal Fishery: Akyinim has one landing beach. The dominant fishing method is purse seining. Bantama has one landing beach at Detsedo where the main fishing methods used is purse seining and ali nets. Elmina has 3 landing sites i.e. at Bonso-Ano, Asamanpowmu and Elmina Main on the southern and western part of Benya lagoon. Benya lagoon is an important fishing harbor, attracting fishermen from most of Ghana during the upwelling season. The predominant fishing methods used are set nets and drift nets.

Industrial/Domestic utilization: The northern and eastern parts of Benya lagoon are used for commercial salt production, with extensive salt pans. Mangroves are harvested for fuel for fish smoking. There are also salt ponds in Nsuneda lagoon.

Recreation/tourism: There are two forts in Elmina, Elmina Castle (or St Georges castle) and Fort St Jago built by the Portuguese in 1482 and by the Dutch in 1665-1666, respectively. There are hotels at the water front. There are also bathing beaches.



Ecological Sensitivity Atlas Map 41



5°7'30.00"

5°6'0.00"

5°4'30.00"

-1°19'30.00"

-1°18'0.00"

5°7'30.00"

5°6'0.00"

5°4'30.00"

-1°19'30.00"

-1°18'0.00"

-1°19'30.00"

PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with moderate slope. There are rocks in the westernmost part of the area. Iture Lagoon is an open type with permanent connection to the sea.

ECOLOGICAL ENVIRONMENT

The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopterus delicatula*, *Ulva fasciata*, *Chaetomorpha* sp. and *Lithothamnium* sp.

At Iture and Okyeso there are intertidal rocks covered by abundant algal growth, which is exposed at low tide. This habitat is very important as a nursery area for fish.

Iture Lagoon

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Protection: The Iture wetland is a potential Ramsar site. The site has, however, not been formally designated.

Vegetation: Iture lagoon has the highest species diversity of mangroves in Ghana. The five species of true mangrove that occur here are, *Rhizophora racemosa*, *Rhizophora harrisonii*, *Rhizophora mangle*, *Avicennia germinans* and *Languncularia racemosa*.

Birds: The Iture lagoon is feeding site for water fowl including little egret, Reef heron, Common tern and little tern.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priopthalmus kaelruti*, freshwater species such as *Oreochromis niloticus* and *Tilapia zillii*, and marine species like *Albula vulpes* and *Lutjanus fulgens*.

The lagoon is a nursery ground for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil* sp., *Gerys melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

Other species: There are clams and oysters in the lagoon.

LEGEND

● Towns

Sensitivity Rankings

Low

Medium

High

Very High



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development Programme (OID). All Rights Reserved.

**Socio-economic Sensitivity Atlas
Map 41**



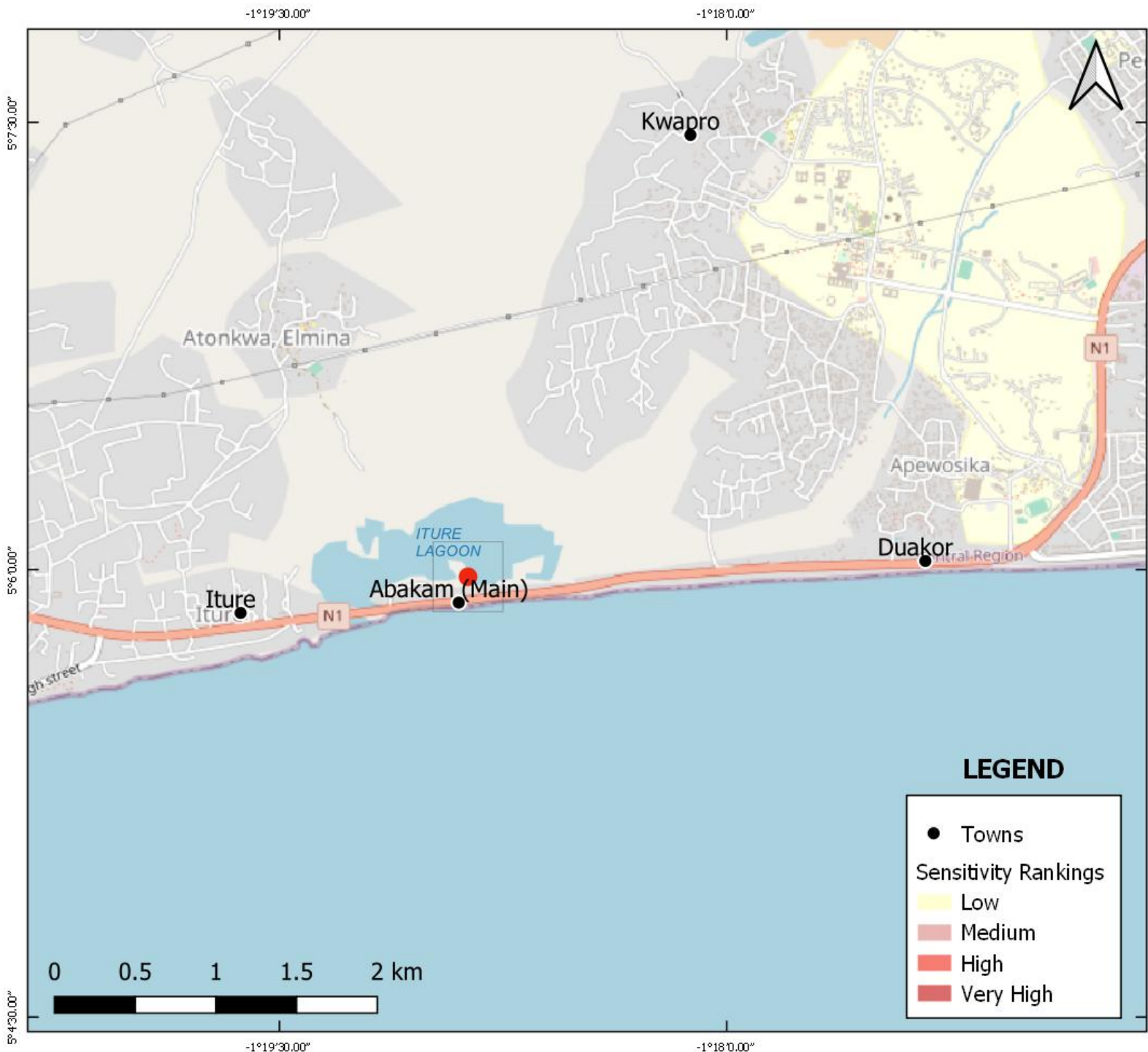
PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with moderate slope. There are rocks in the westernmost part of the area. Iture Lagoon is situated in the area. This lagoon is an open type with permanent connection to the sea.

HUMAN ACTIVITY

Coastal Fishery: Cape Coast has eleven landing beaches located at Brofoyedru, Amanful, Idan, Asekam, Abrofo Mpoano, Victoria Park, Baka Ano, OIA, Duakor, Aheboboe and Abakam, of which Asekam and Victoria Park. Beach seining is the main fishing method used.

Industrial/Domestic utilization: There are salt ponds at Iture and Okyeso.

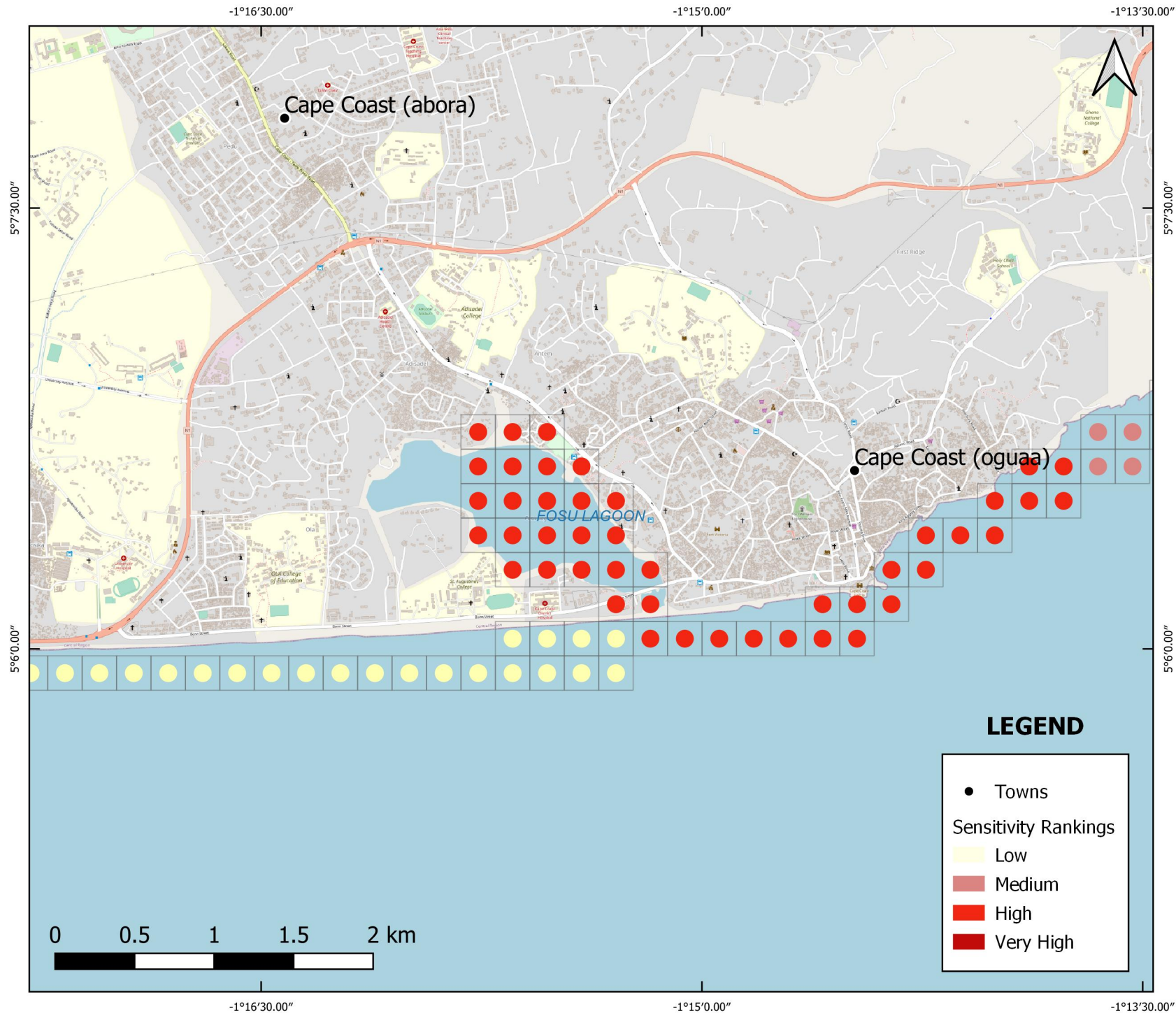


LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



Ecological Sensitivity Atlas Map 42



PHYSICAL ENVIRONMENT

The coastline is predominantly coarse sand with a moderate slope. At Cape Coast there are exposed rocks with low to moderate slope. The Fosu Lagoon located in this area is semi-closed.

ECOLOGICAL ENVIRONMENT

The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteris delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

Intertidal rocks covered by abundant algal growth, which are exposed at low tide, are encountered at Cape Coast. This habitat is very important as a nursery area for fish.

Fosu Lagoon.

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Birds: Fosu lagoon is a feeding site for migrant birds. Reef heron and Little egret are common in the lagoon.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priopthalmus kaelruti*, freshwater species such as *Oreochromis niloticus* and *Tilapia zillii* and when the lagoon is open, marine species like *Albula vulpes* and *Lutjanus fulgens*.

When open, the lagoon is a nursery ground for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.*, *Geres melanopterus* and the shrimps *Penaues duorarum* and *Penaues atlantica*.

Other species: There are oysters and clams in the lagoon.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



**Socio-economic Sensitivity Atlas
Map 42**



PHYSICAL ENVIRONMENT

The coastline is predominantly coarse sand with a moderate slope. At Cape Coast there are exposed rocks with low to moderate slope. The Fosu Lagoon located in this area is semi-closed.

HUMAN ACTIVITY

Coastal Fishery: Cape Coast has eleven landing beaches located at Brofoyedru, Amanful, Idan, Asekam, Abrofo Mpoano, Victoria Park, Baka Ano, OIA, Duakor, Aheboboe and Abakam, of which Asekam and Victoria Park. Beach seining is the main fishing method used.

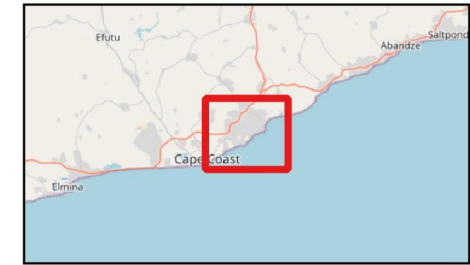
Recreation/tourism: There is an old castle in Cape coast, the Cape coast Castle built by the Swedes in 1653. There is a hotel at the waterfront in Cape Coast.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Ecological Sensitivity Atlas Map 43



PHYSICAL ENVIRONMENT

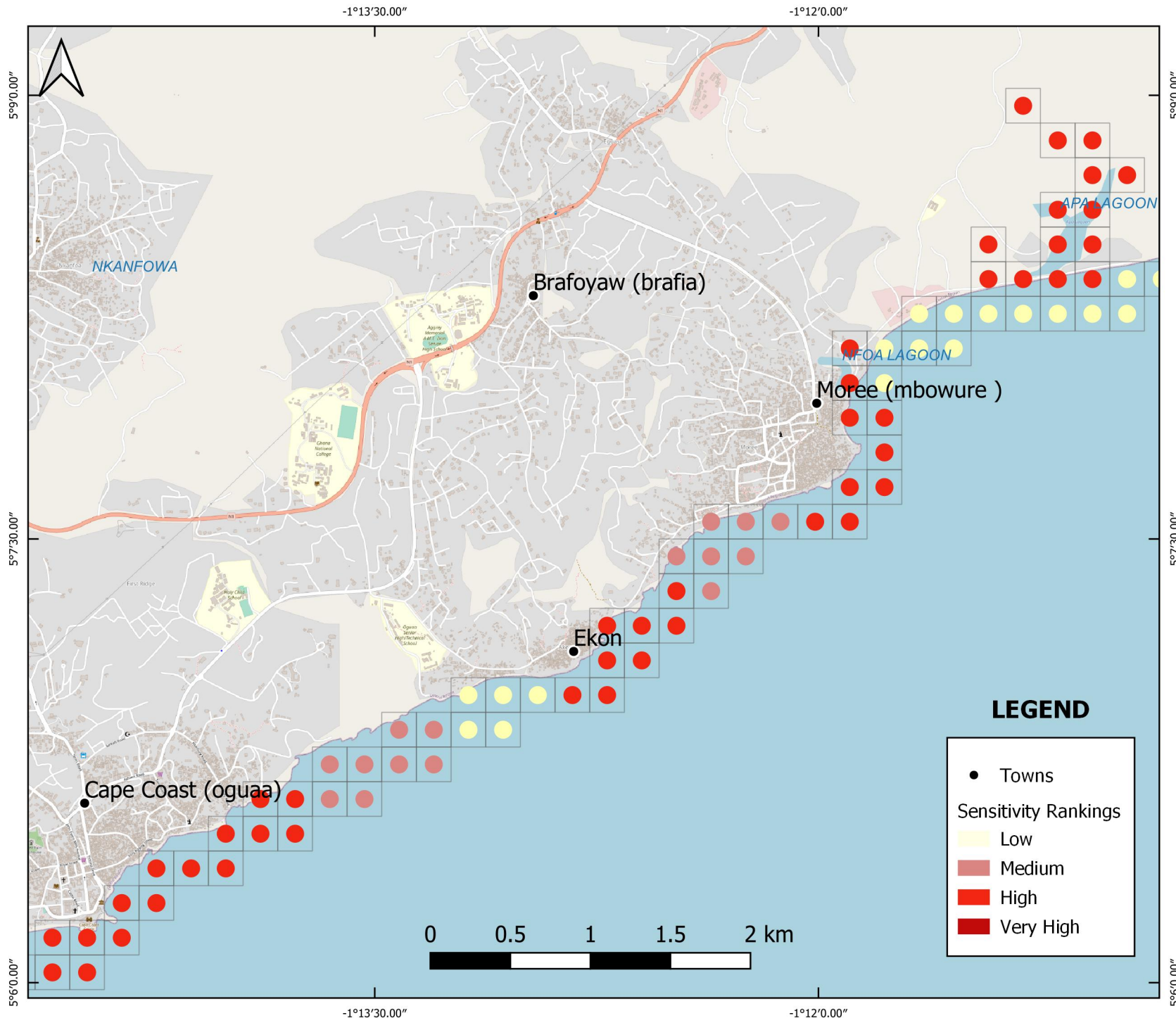
The beach is coarse sand with moderate slope. At Cape Coast, Ekon, and Moree there are exposed rocks with low to moderate slope. There are also steep exposed rocks at Ekon. The Nfoa Lagoon located in this area is closed and has no connection to the sea. The lagoon will therefore not be affected by an oil spill at sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteris delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

Intertidal rocks covered by abundant algal growth which are exposed at low tide is encountered in the southern part of the area at Cape Coast, at rocky shores off Ekon and Moree. This habitat is very important as a nursery area for fish.

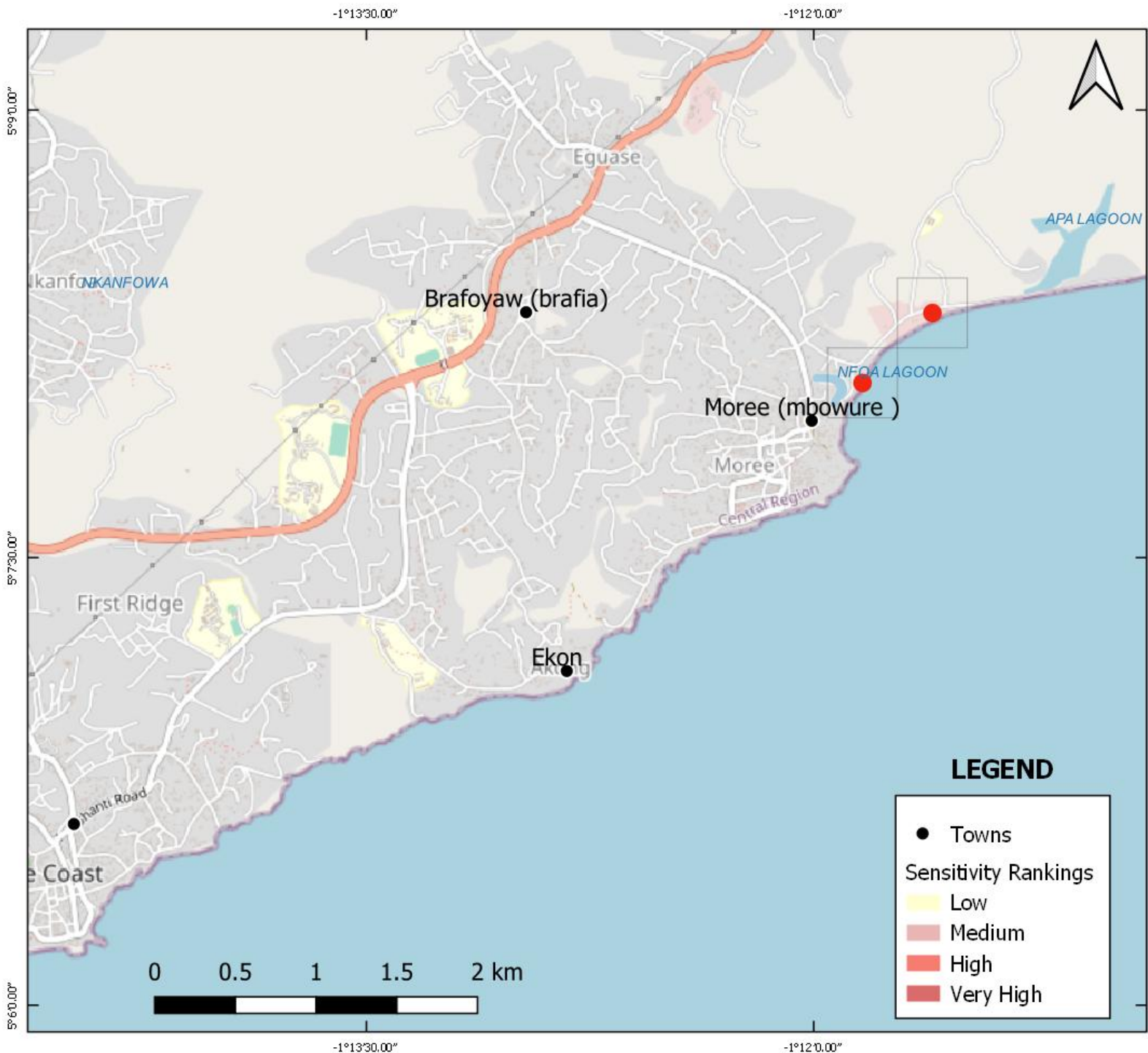


LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Socio-economic Sensitivity Atlas Map 43



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. At Cape Coast, Ekon, and Moree there are exposed rocks with low to moderate slope. There are also steep exposed rocks at Ekon. The Nfoa Lagoon located in this area is closed and has no connection to the sea. The lagoon will therefore not be affected by an oil spill at sea.

HUMAN ACTIVITY

Coastal Fishery: Ekon has three fish landing beaches located at Ayepam/Boemis, Anafo and Ahwiado. The fishing methods used are predominantly set nets.

Moree has eight landing beaches located at Asekerebedzi, Apesa Mpoano, Enfa Ano, Bentsin, Nkum Abrofo, Cotonou, Etuei and Abokum Ano. Set nets and all nets are mainly used.

Recreation/tourism: There is an old fort in Moree, Fort Nassau that was built by the Dutch in 1612. Now the fort is a substantial ruin. There is a bathing beach east of Cape Coast.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Ecological Sensitivity Atlas Map 44

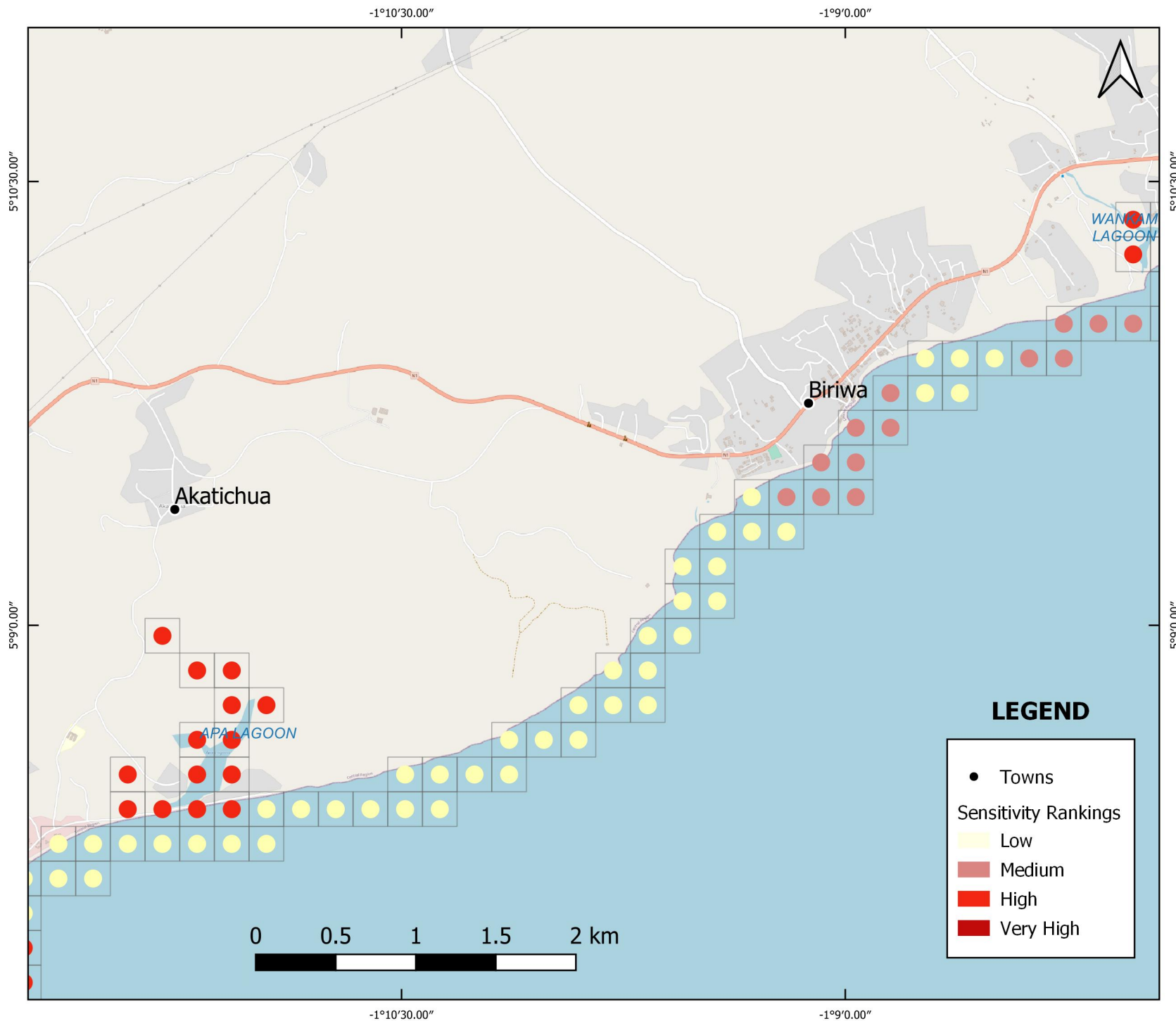


PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with moderate slope. At Biriwa there are exposed rocks with low to moderate slope, the Apa Lagoon is closed and has no connection to the sea. The lagoon will therefore not be affected by an oil spill at sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity. The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dicyopterus delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*



Socio-economic Sensitivity Atlas Map 44



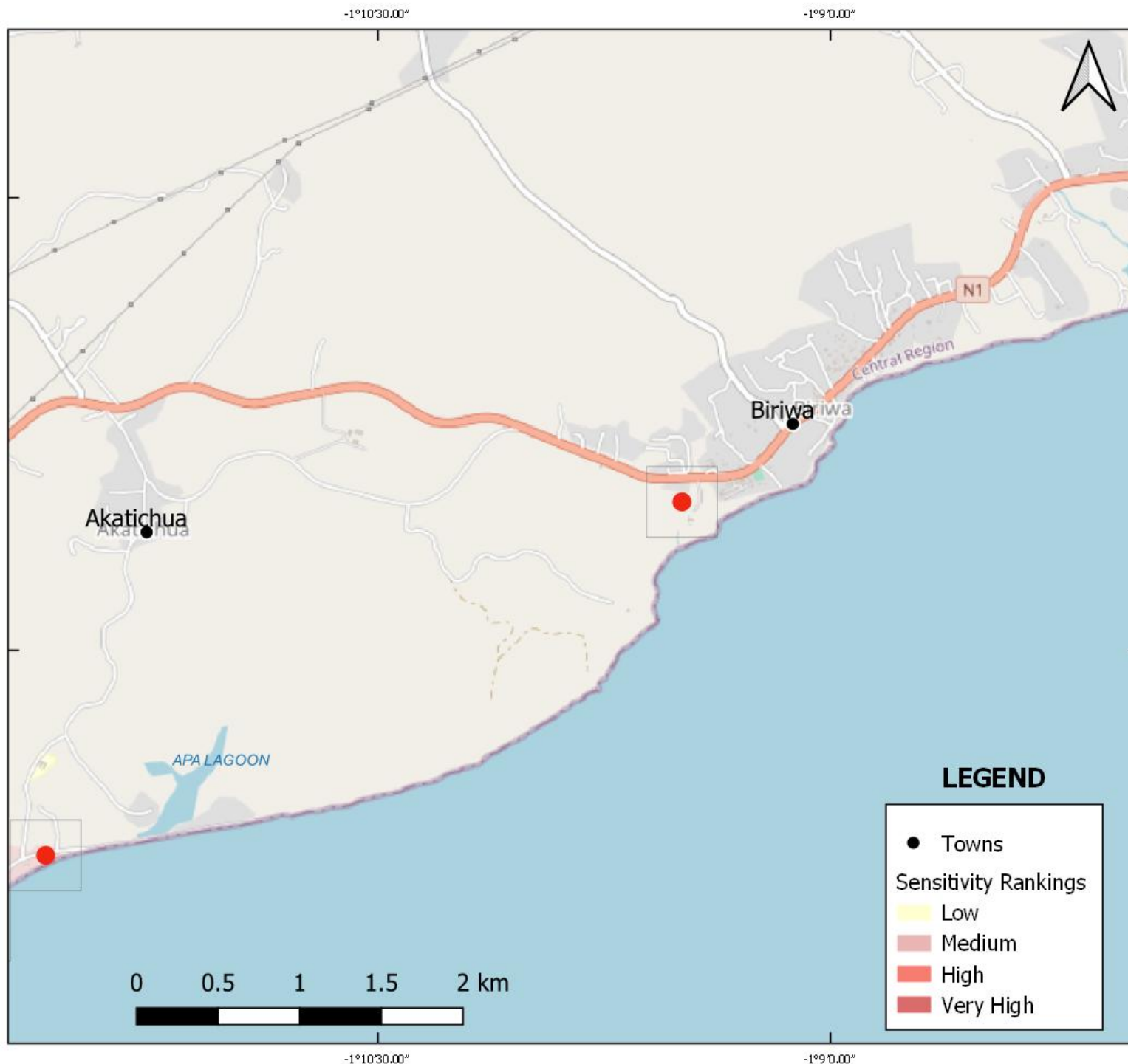
PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with moderate slope. At Biriwa there are exposed rocks with low to moderate slope. The Apa Lagoon is closed and has no connection to the sea. The lagoon will therefore not be affected by an oil spill at sea.

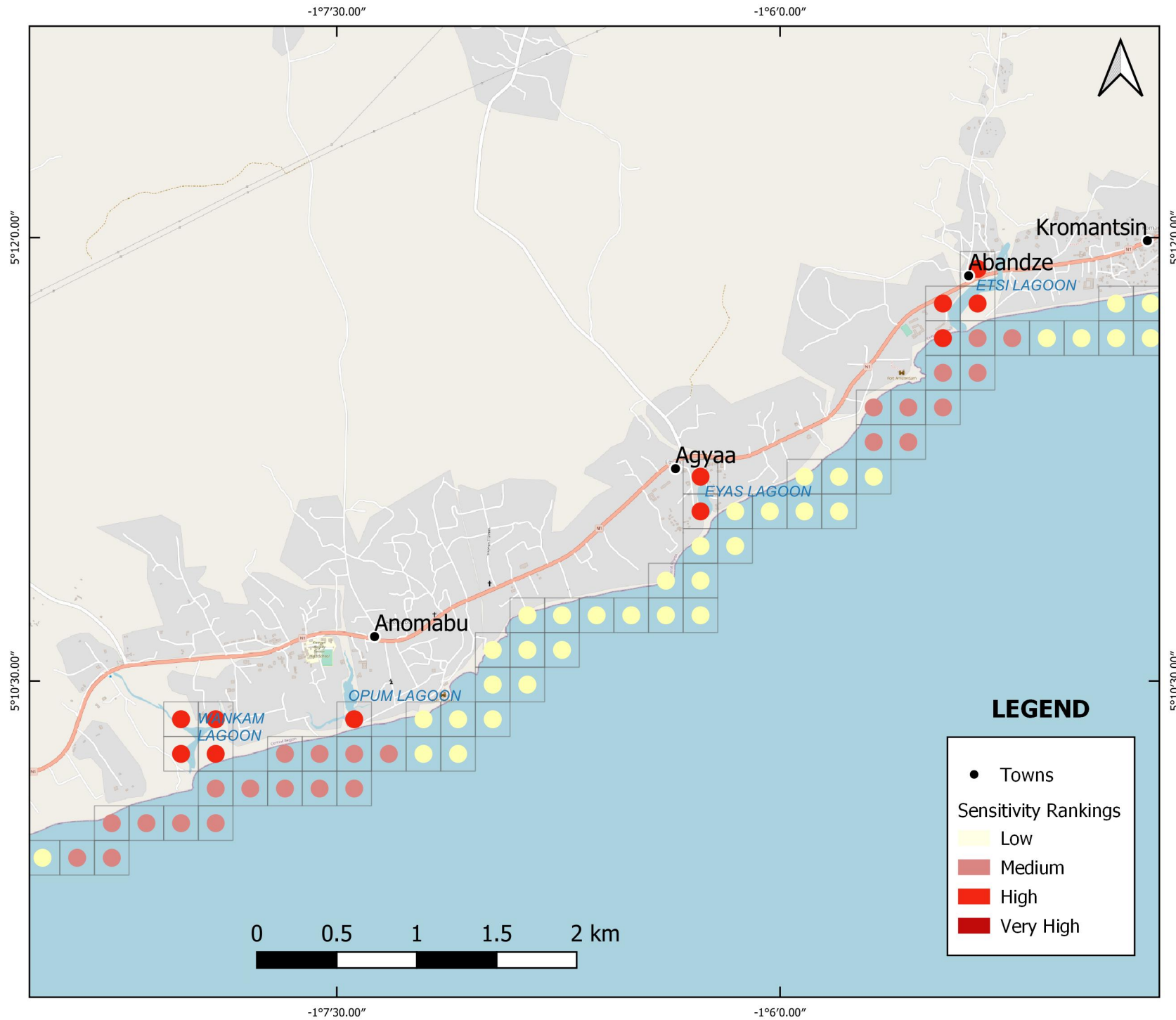
HUMAN ACTIVITY

Coastal Fishery: Biriwa has three landing beaches located at Abaka Ekyir, Sima Bremu and Ober Enyim. The dominant fishing methods are drifting nets and purse seining.

Recreation/tourism: There is a hotel at the waterfront and a bathing beach at Biriwa.



Ecological Sensitivity Atlas Map 45



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. There are four lagoons in the area the Wankam, the Opum, the Eyas and the Etsi lagoon. These lagoons are all open.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Wankam and Opum Lagoons.

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Birds: Wankam and Opum lagoons are feeding sites for migrant birds. Common species encountered include Reef heron, Little egret, Little tern and Common tern.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priophthalmus kaelruti*, freshwater species such as *Oreochromis niloticus* and *Tilapia zillii*, and marine species such as *Albula vulpes* and *Lutjanus fulgens*.

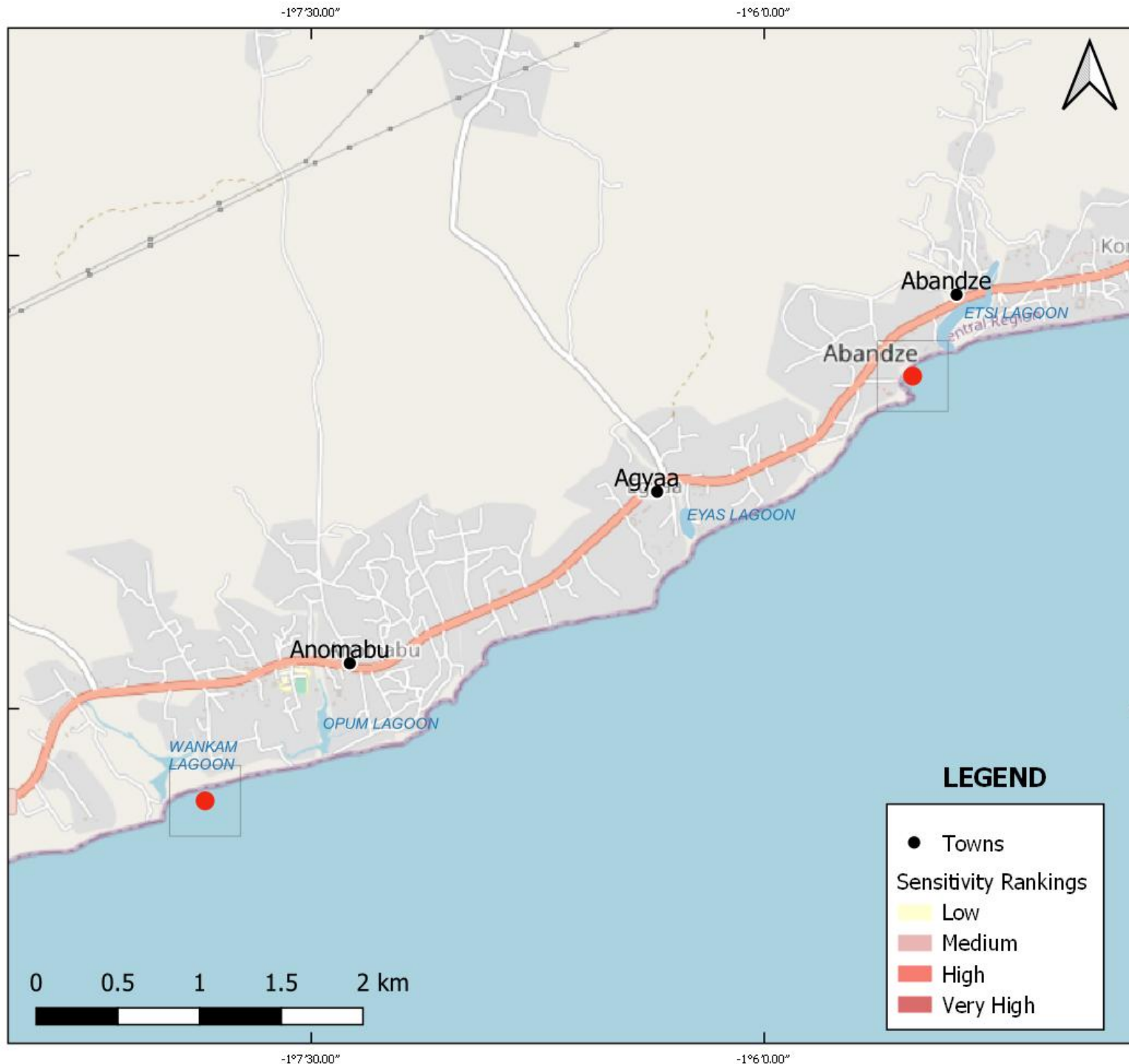
The lagoons are nursery grounds for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Socio-economic Sensitivity Atlas Map 45



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. There are four lagoons in the area the Wankam, the Opum, the Eyas and the Etsi lagoon. These lagoons are all open.

HUMAN ACTIVITY

Coastal Fishery: Anomabo has six landing beaches located at Krom Mpoano, Atsiwa, Aban Ekyir, Afari Kumawu, Ahweano and Baka Ano. The dominant fishing methods used are purse seining. Set nets are also used to a lesser extent (mainly at Aban Ekyir).

Egya has three landing beaches located at Akyemfo, Daafo Mpoano and Aban Enyim. The main methods used are set nets and ali nets.

Abandze has one landing beach. The fishing methods used here are predominantly lobster nets. Other nets used include purse nets, ali nets and drifting nets.

Industrial/Domestic utilization: There are salt ponds in Wankam Lagoon.

Recreation/tourism: There is an old fort - Fort Charles - at Anomabo founded by the Dutch in 1630. There is also an old fort in Abandze, Fort Amsterdam built by the British in 1631. There are hotels at the waterfront in Anomabo.



Ecological Sensitivity Atlas Map 46



PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with moderate slope. The Atufa lagoon located in this area is open and connected to the sea.

ECOLOGICAL ENVIRONMENT

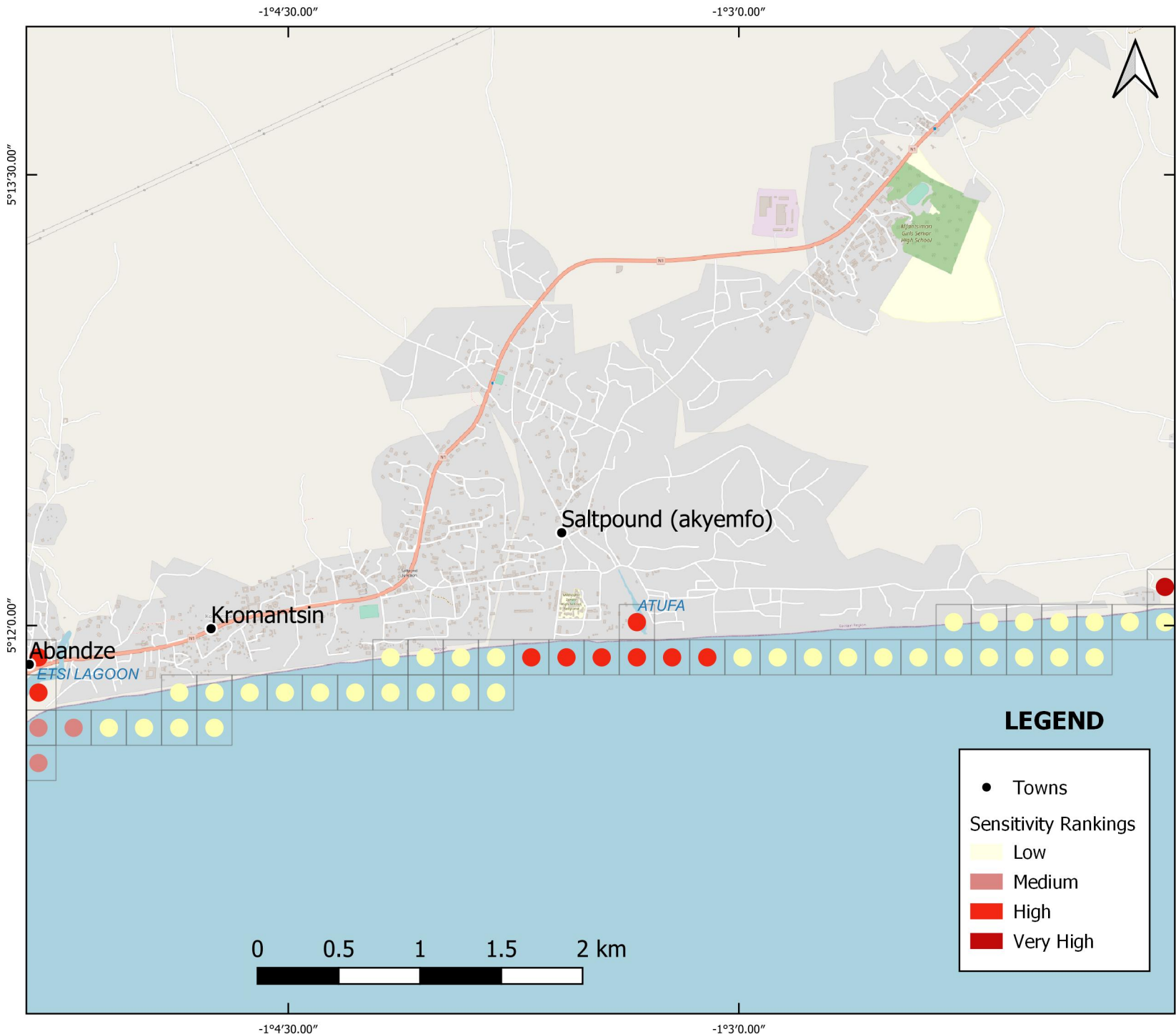
Sandy beaches generally have low species diversity.

Atufa Lagoon

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priopthalmus kaelruti*, freshwater species such as the cichlids *Oreochromis niloticus* and *Tilapia zillii* and marine species like *Albula vulpes* and *Lutjanus fulgens*.

The lagoon is a nursery ground for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*

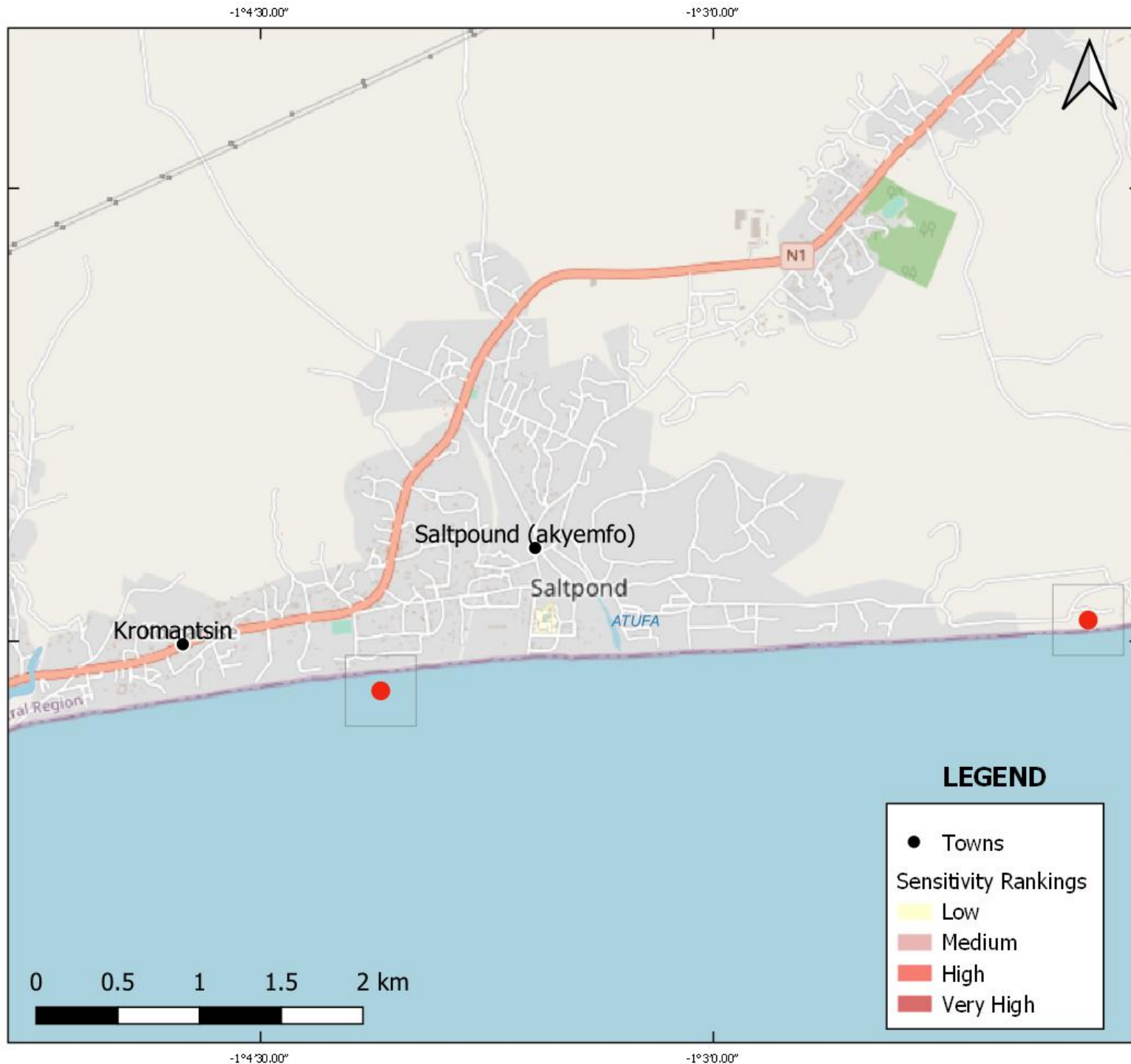


LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



**Socio-economic Sensitivity Atlas
Map 46**



PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with moderate slope. The Atufa lagoon located in this area is open and connected to the sea.

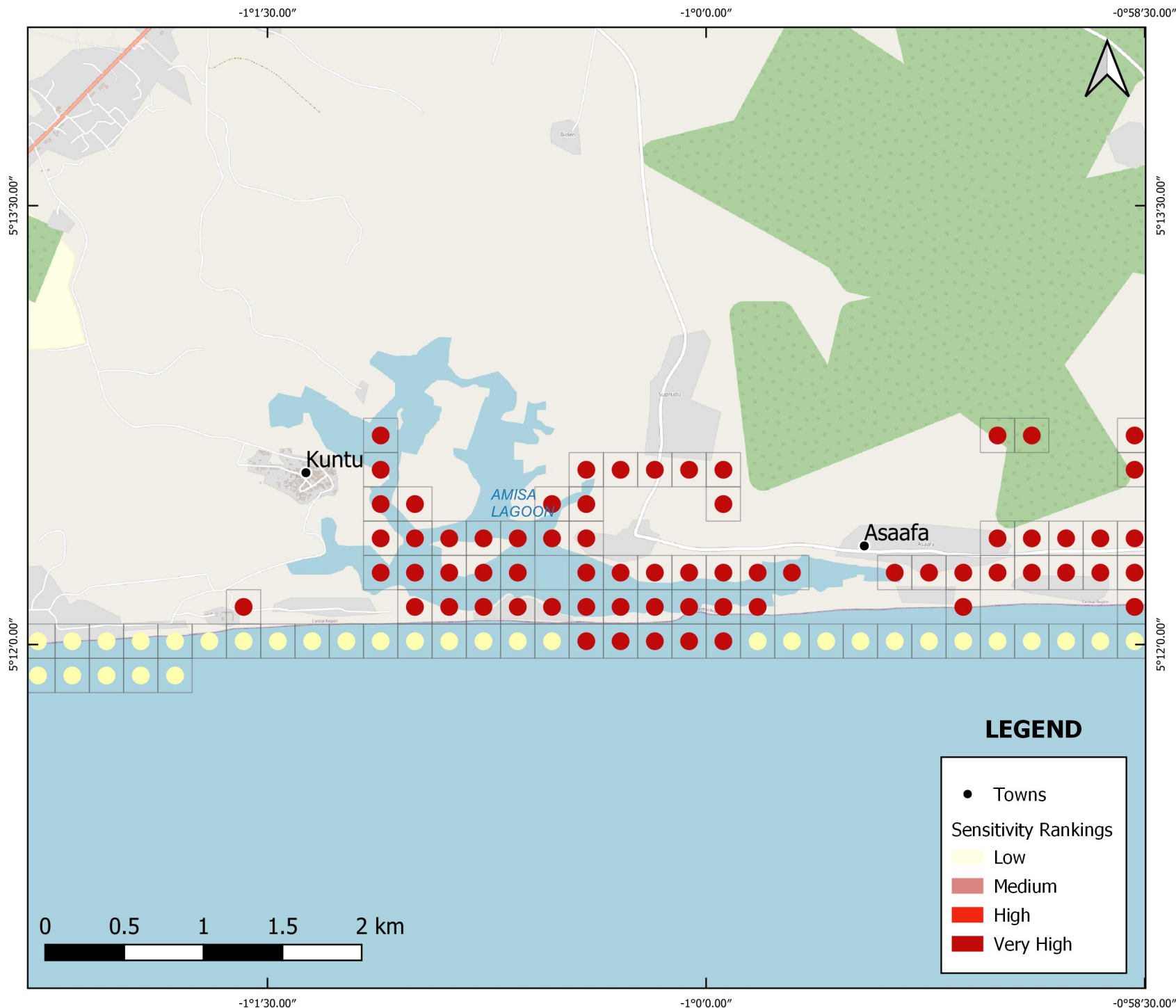
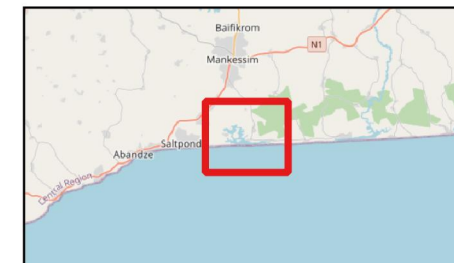
HUMAN ACTIVITY

Coastal Fishery: Kromantse 1 has one landing beach and the dominant fishing method practiced is purse seining. The main fishing method at Kromantse 2 and Ankaful is purse seining. Saltpond has a landing beach at Kateck Beach, where the dominant fishing method is beach seining. Nankesedo has one landing beach with the dominant fishing methods being purse and beach seining.

Recreation/tourism: There is a bathing beach at Saltpond.



Ecological Sensitivity Atlas Map 47



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. The Amisa lagoon is situated in the area. It is an open lagoon with connection to the sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Amisa Lagoon

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Vegetation: There are mangroves in Amisa lagoon

Birds: The Amisa Lagoon has an extensive wetland and is a feeding site for local and migrant birds including Common tern, Grey heron, Reef heron, Great white egret, Ringed plover, Grey plover, Greenshank and Black-winged stilt.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priopthalmus kaelruti*, freshwater species such as *Oreochromis niloticus* and *Tilapia zillii*, and marine species like *Albula vulpes* and *Lutjanus fulgens*

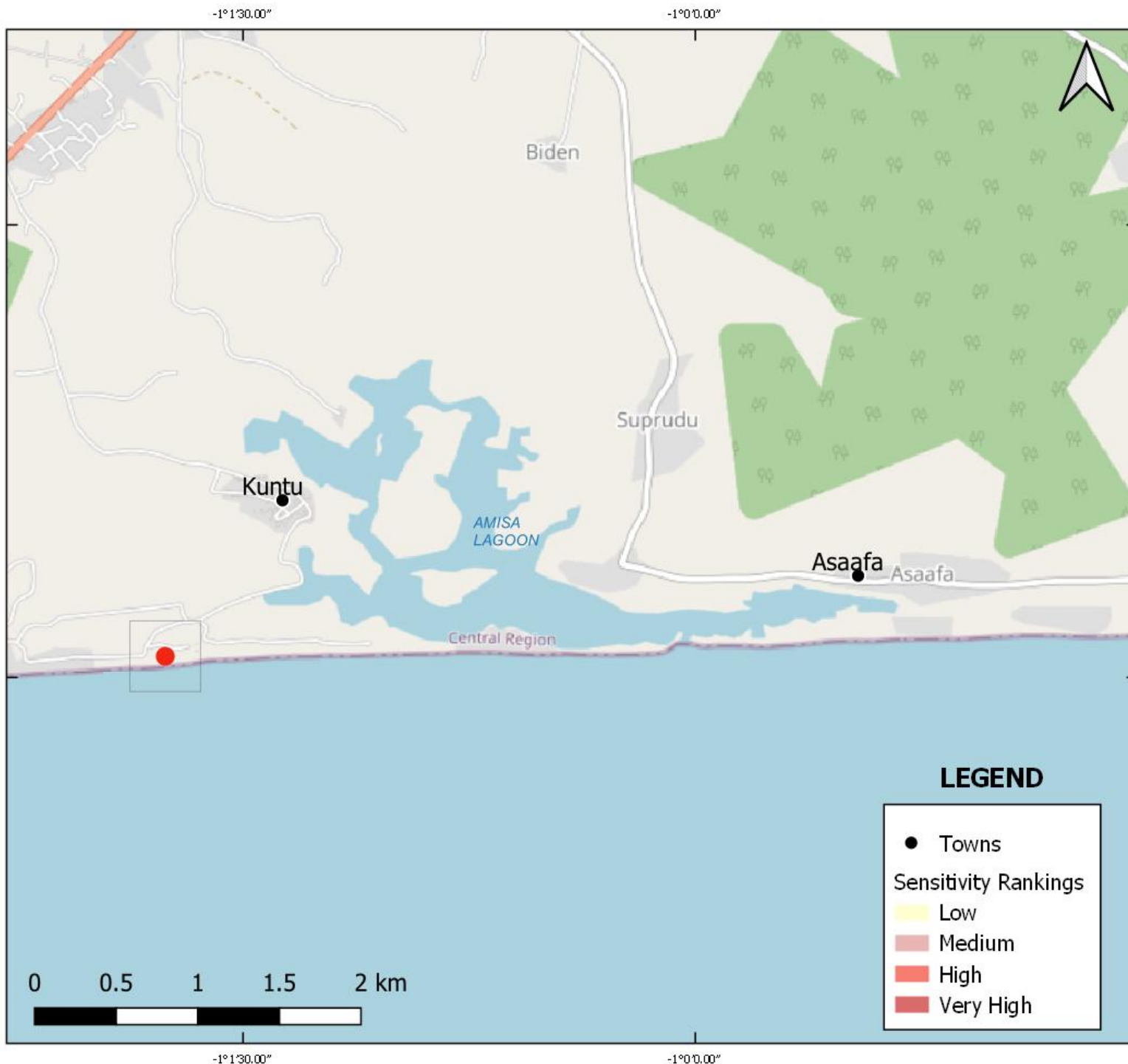
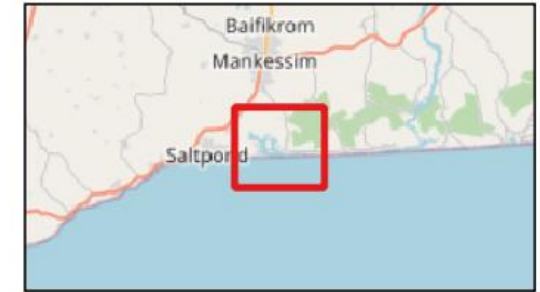
The lagoon is a nursery ground for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.*, *Genes melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



**Socio-economic Sensitivity Atlas
Map 47**



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. The Amisa lagoon is situated in the area. It is an open lagoon with connection to the sea.

HUMAN ACTIVITY

Coastal Fishery: Kuntu has one landing beach at Pebi. The dominant fishing method used is set netting. Hinyi has one landing beach and the fishing methods used are mainly pursing and lobster nets. Asaafa has one landing beach at Ekumfi Asaafa, where the main methods used are set nets, lobster nets and beach seining.

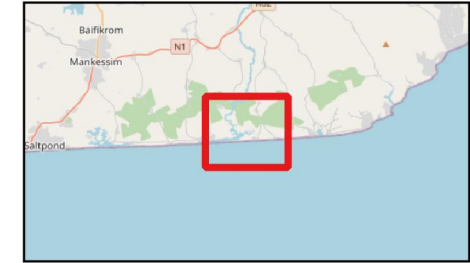


-0°55'30.00"

-0°54'0.00"

-0°52'30.00"

Ecological Sensitivity Atlas Map 49

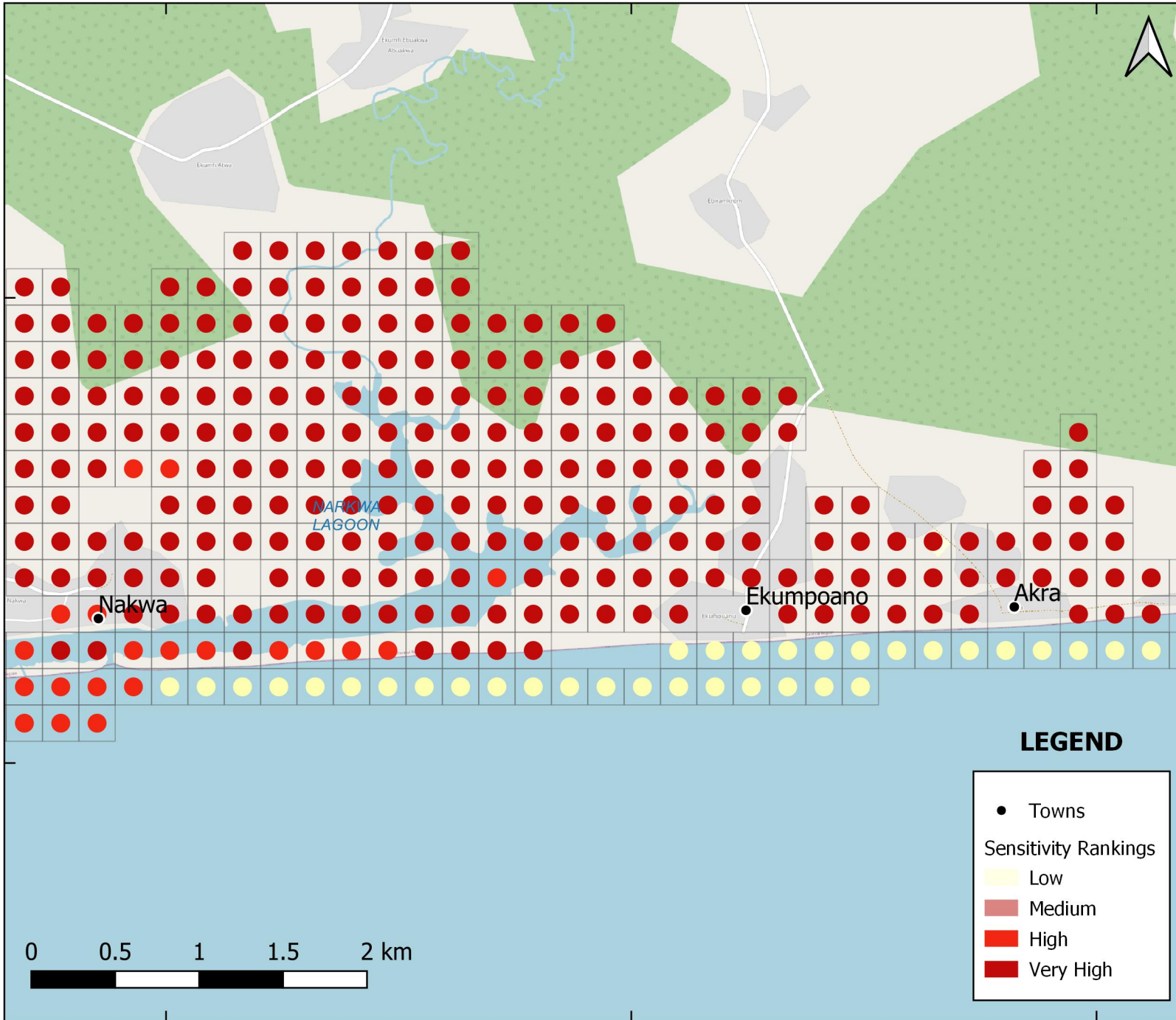


5°13'30.00"

5°13'30.00"

5°12'0.00"

5°12'0.00"



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. There is an open lagoon in the area, the Narkwa lagoon.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Narkwa Lagoon.

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Protection: The Narkwa lagoon is a potential Ramsar site. However, it has not yet been formally designated a Ramsar site.

Vegetation: There are mangroves in the Narkwa lagoon

Birds. Narkwa lagoon is feeding area for waterfowl including Grey heron, Reef heron, Great white egret, Common tern, Little tern, Cormorants and Black-winged stilt.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priopthalmus kaelruti*, freshwater species like *Oreochromis niloticus* and *Tilapia zillii*, and marine species such as *Albula vulpes* and *Lutjanus fulgens*.

The lagoon is a nursery ground for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High

0 0.5 1 1.5 2 km

-0°55'30.00"

-0°54'0.00"

-0°52'30.00"



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development Programme (OfD). All Rights Reserved.

**Socio-economic Sensitivity Atlas
Map 48**



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. There is an open lagoon discharging into the sea at Narkwa.

HUMAN ACTIVITY

Coastal Fishery: Edumafa has one landing beach named Aboegyir. The gears used include set nets, ali and drift nets. Narkwa has one landing beach at Narkwa Mpoano. The predominant fishing methods used are purse seining and ali nets.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High

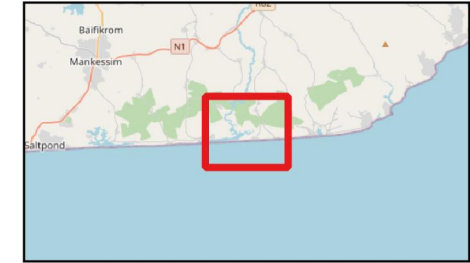


-0°55'30.00"

-0°54'0.00"

-0°52'30.00"

Ecological Sensitivity Atlas Map 49



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. There is an open lagoon in the area, the Narkwa lagoon.

ECOLOGICAL ENVIRONMENT

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Protection: The Narkwa lagoon is a potential Ramsar site. However, it has not yet been formally designated a Ramsar site.

Vegetation: There are mangroves in the Narkwa lagoon

Birds: Narkwa lagoon is feeding area for waterfowl including Grey heron, Reef heron, Great white egret, Common tern, Little tern, Cormorants and Black-winged stilt.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priopthalmis kaelruti*, freshwater species like *Oreochromis niloticus* and *Tilapia zillii*, and marine species such as *Albula vulpes* and *Lutjanus fulgens*

The lagoon is a nursery ground for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.* *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

5°13'30.00"

5°13'30.00"

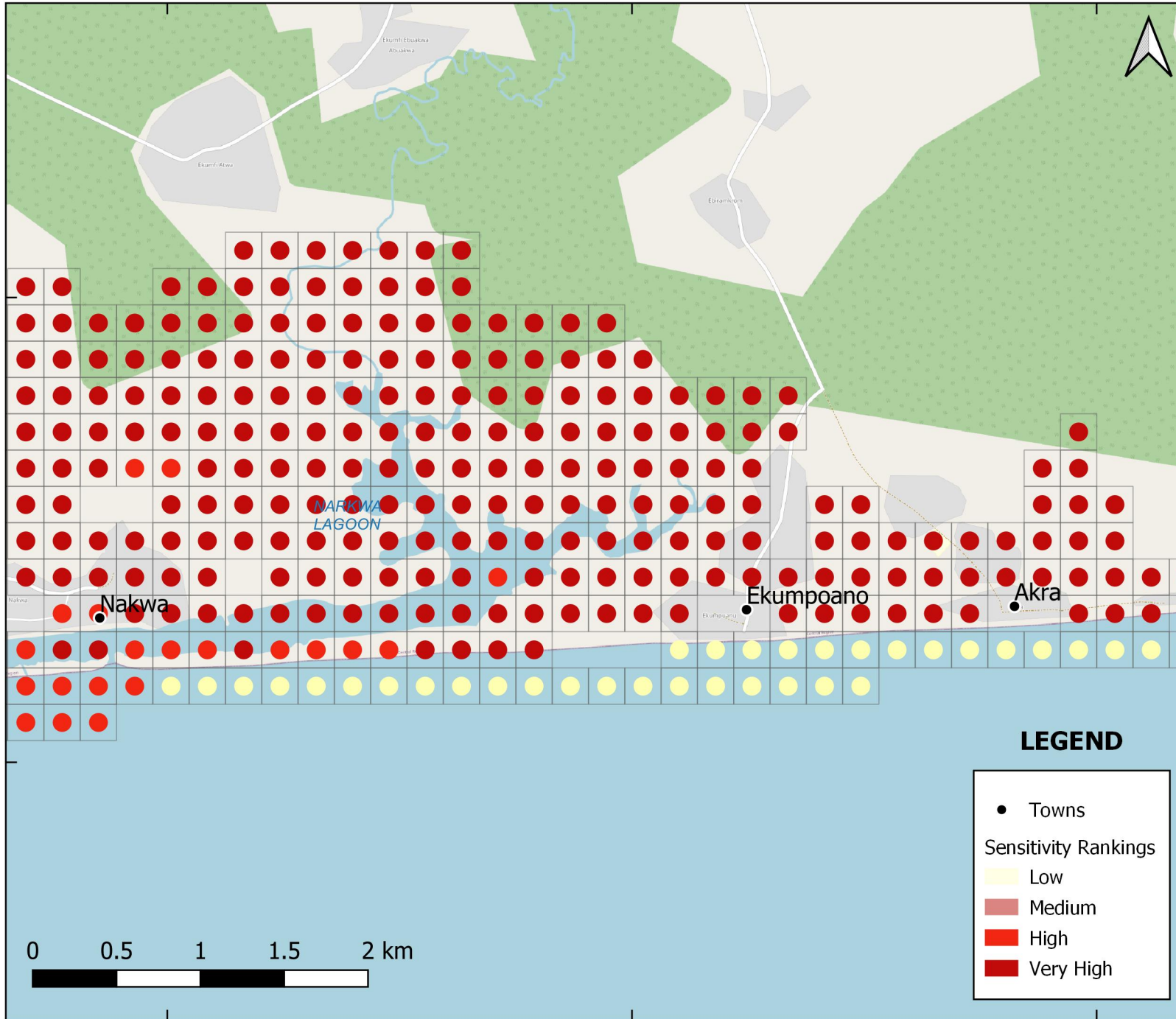
5°12'0.00"

5°12'0.00"

-0°55'30.00"

-0°54'0.00"

-0°52'30.00"

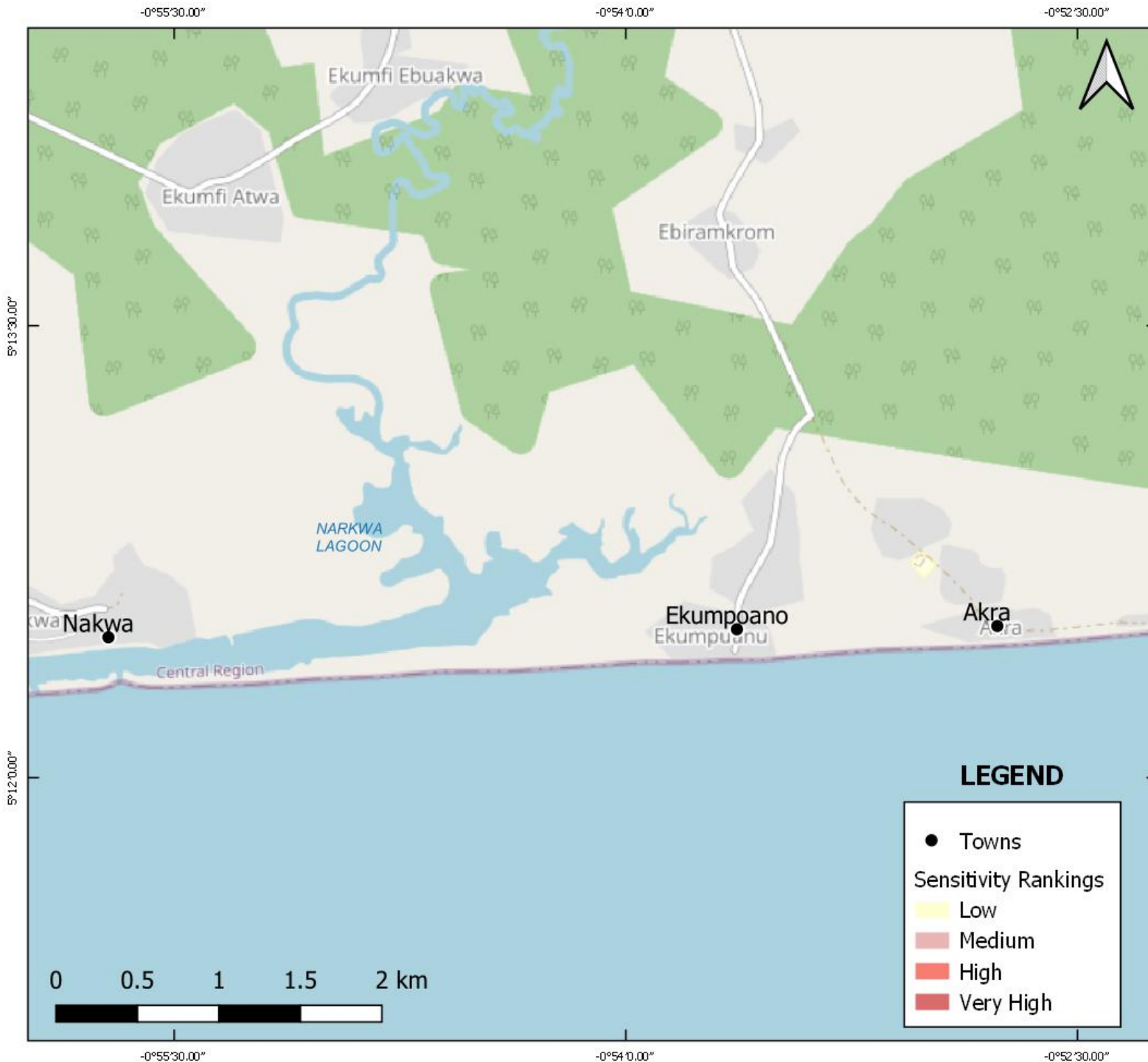


LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



**Socio-economic Sensitivity Atlas
Map 49**



PHYSICAL ENVIRONMENT

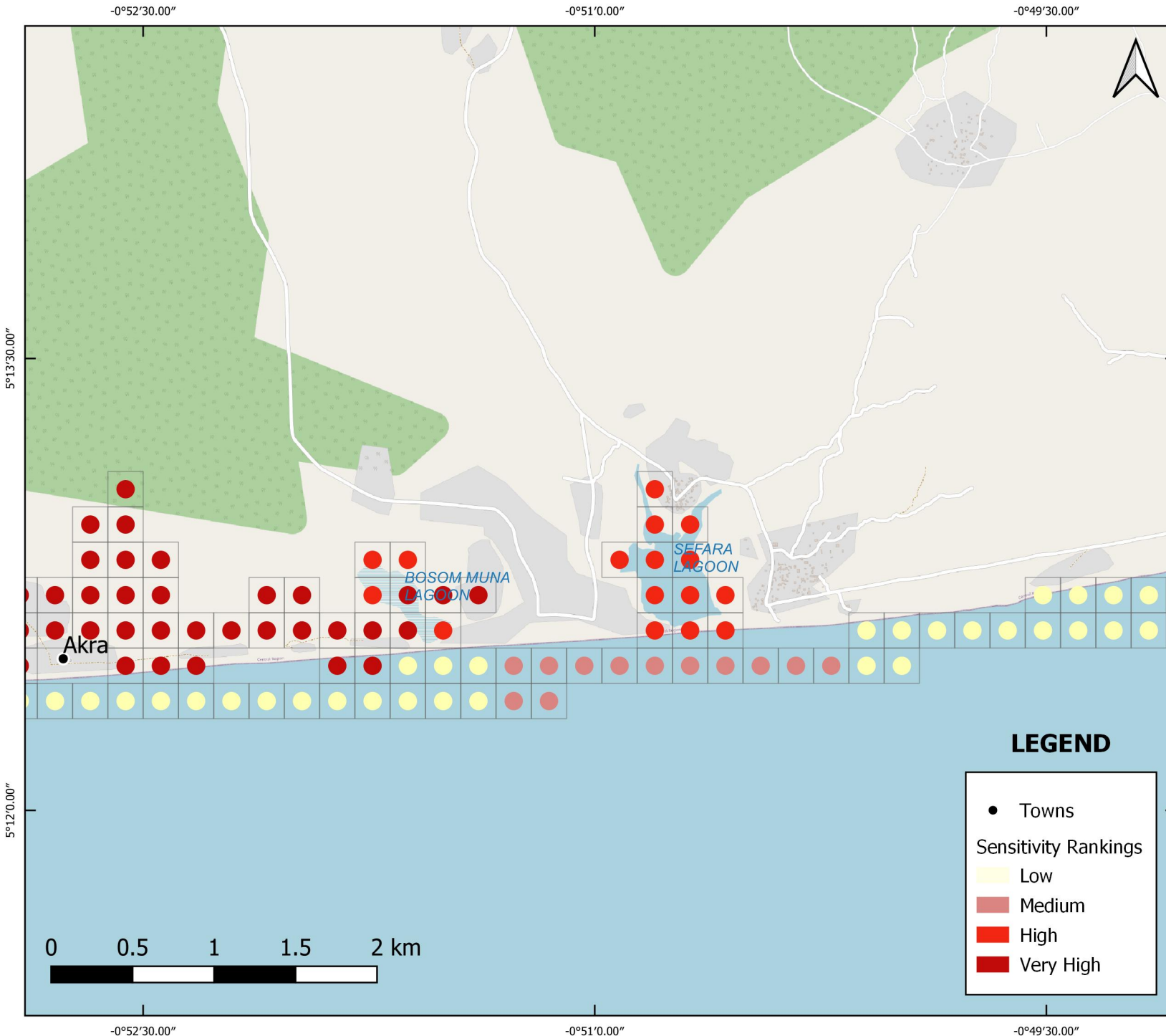
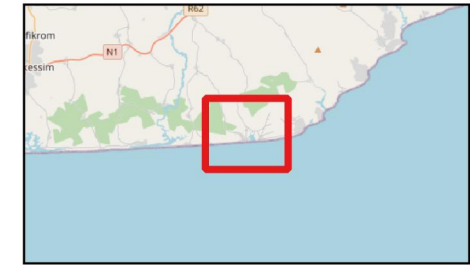
The beach is coarse sand with moderate slope. There is an open lagoon in the area, the Narkwa lagoon.

HUMAN ACTIVITY

Coastal Fishery: Ekumpoano has one landing beach where the main fishing methods used are set nets and beach seining. Pursing nets, line fishing, ali and drift nets are also used but to a lesser extent.
Akra has one landing beach at Akra Mpoano and the main fishing method used is set nets.



Ecological Sensitivity Atlas Map 50



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. There are two lagoons in the area. The Bosum Muna lagoon and the Sefara lagoon. The Bosum Muna lagoon is a closed lagoon and will therefore not be affected by an oil spill at sea. The Sefara lagoon is semi-closed seasonally connected to the sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Sefara Lagoon

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Vegetation: There are mangroves around the lagoon.

Birds: The Sefara lagoon is a feeding site for birds including: Grey heron, Reef heron, Little egret and Black-winged stilt.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudkipper *Priopthalmus kaelruti*, freshwater species such as the tilapias *Oreochromis niloticus* and *Tilapia zillii*, marine species such as *Albula vulpes* and *Lutjanus fulgens* (when the lagoon is open).

When the sandbar breaks, Sefara lagoon is a nursery ground for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.



Socio-economic Sensitivity Atlas Map 50



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. There are two lagoons in the area. The Bosum Muna lagoon and the Sefara lagoon. The Bosum Muna lagoon is a closed lagoon and will therefore not be affected by an oil spill at sea. The Sefara lagoon is semi-closed seasonally connected to the sea.

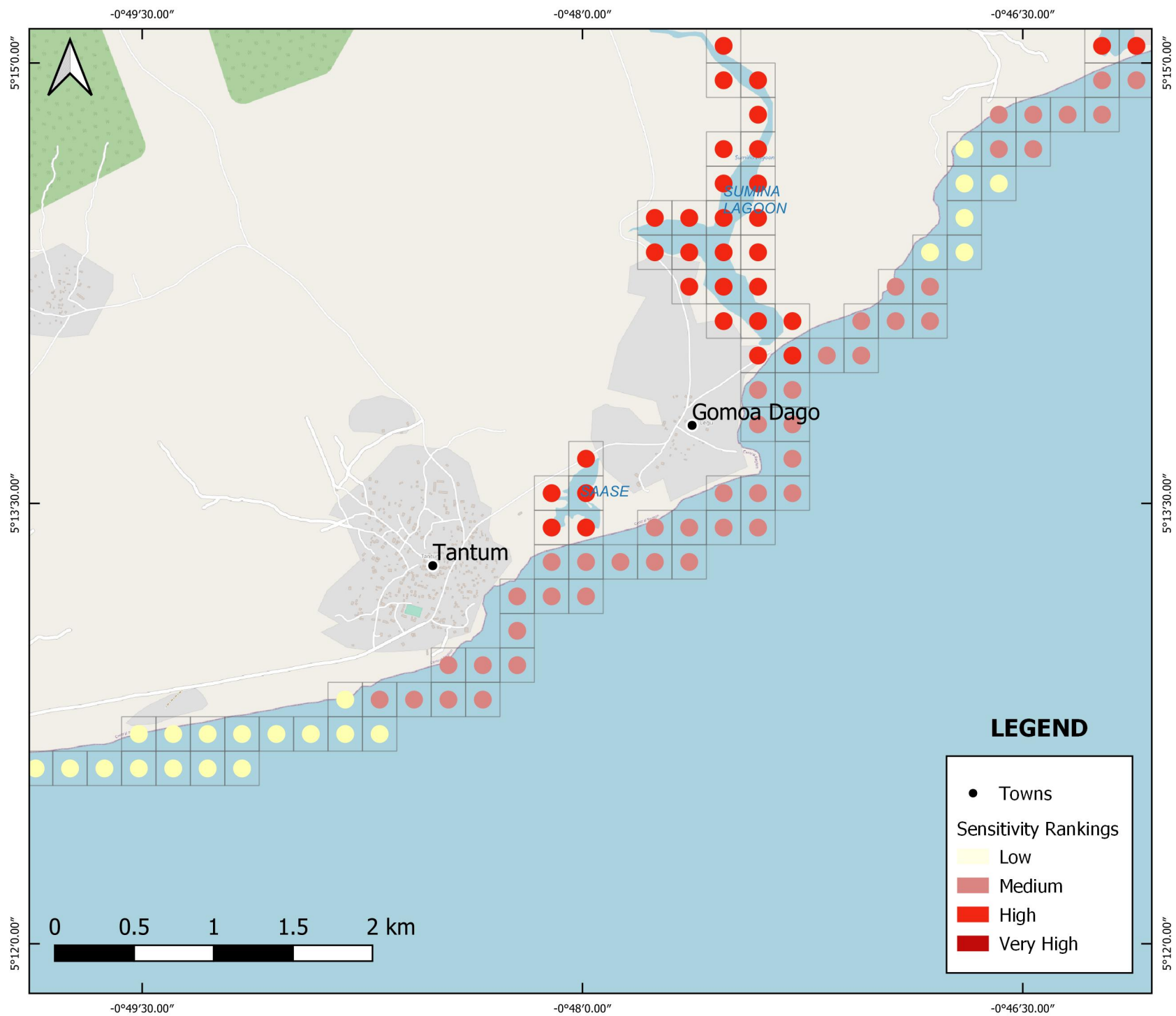
HUMAN ACTIVITY

Coastal Fishery: Ekumpoano has one landing beach where the main fishing methods used are set nets and beach seining. Pursing nets, line fishing, ali and drift nets are also used but to a lesser extent.

Akra has one landing beach at Akra Mpoano and the main fishing method used is set nets.



Ecological Sensitivity Atlas Map 51



PHYSICAL ENVIRONMENT
The beach is predominantly coarse sand with moderate slope. There are exposed rocks with low-moderate slope at Otum and Dago. There are two lagoons in the area, the Saase lagoon and the Sumina Lagoon. Both lagoons are semi-closed and only seasonally connected to the sea.

ECOLOGICAL ENVIRONMENT
The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteris elicitula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

Saase and Sumina Lagoons
The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Birds: The Saase and Sumina lagoon are feeding sites for birds including: Grey heron, Reef heron, Little egret and Black-winged stilt.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priophthalmus kaeruti*, freshwater species such as the tilapias *Oreochromis niloticus* and *Tilapia zillii*, and when the lagoon is open marine species such as *Albula vulpes* and *Lutjanus fulgens*.

When open the Sumina lagoon is a nursery ground for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. These include for instance the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

LEGEND

- Towns
- Sensitivity Rankings**
- Low
- Medium
- High
- Very High

Socio-economic Sensitivity Atlas Map 51



PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with moderate slope. There are exposed rocks with low-moderate slope at Otuam and Dago. There are two lagoons in the area, the Saase lagoon and the Sumina Lagoon. Both lagoons are semi-closed and only seasonally connected to the sea.

HUMAN ACTIVITY

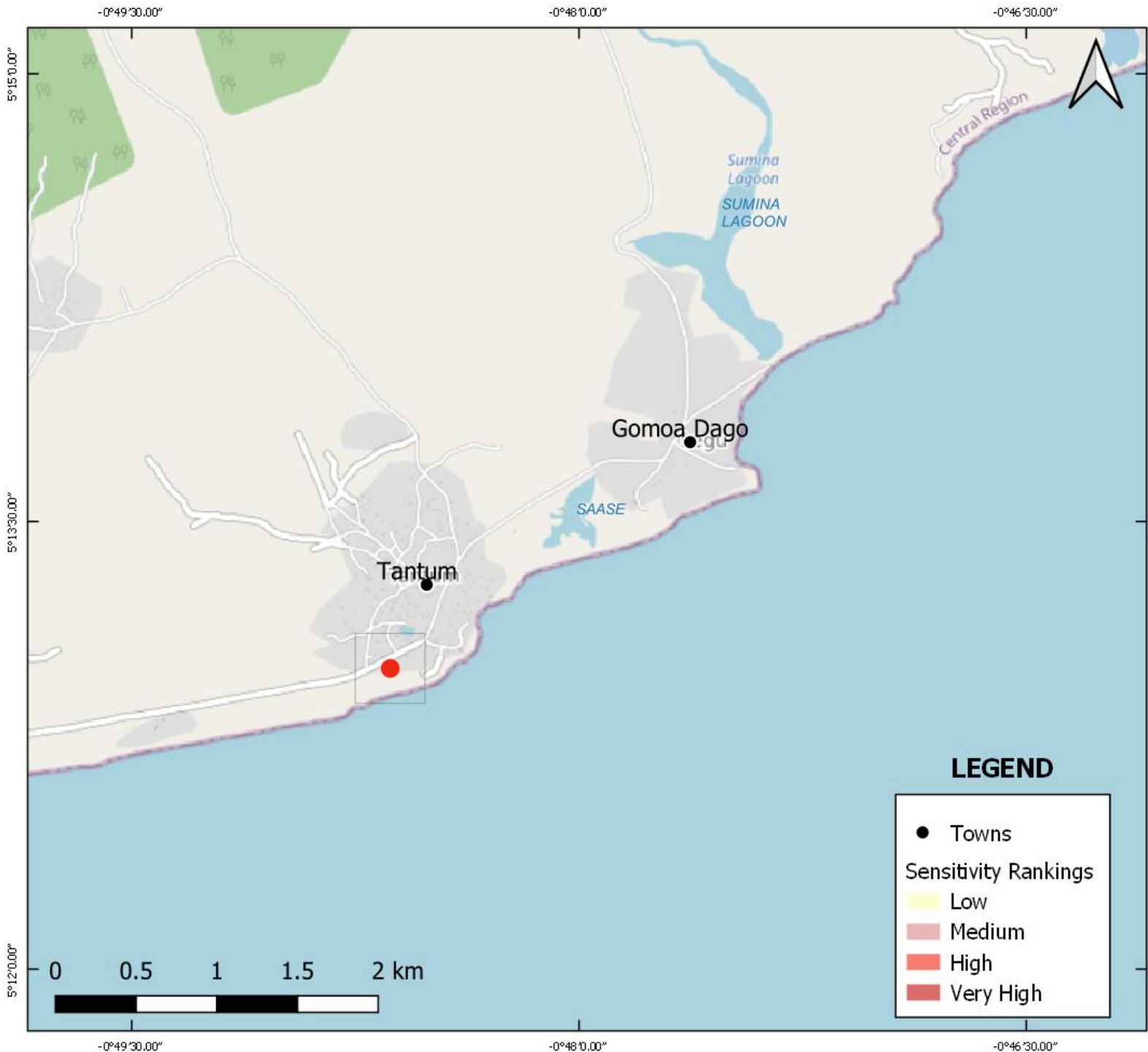
Coastal Fishery: Kotankore has one landing beach and the dominant fishing method is beach seining. Otuam has five landing beaches namely Sasano/Ntse, Asesem, Obom/Etuei, Krowekyir and Amudodu. The main fishing practices are beach seining. Dago has two landing beaches namely Akoberian and Dago Main. The predominant gears used are set nets.

Industrial/Domestic utilization: There are saltponds at Sumina Lagoon.

Recreation/tourism: There is a ruin in Dago.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



-0°48'0.00"

-0°46'30.00"

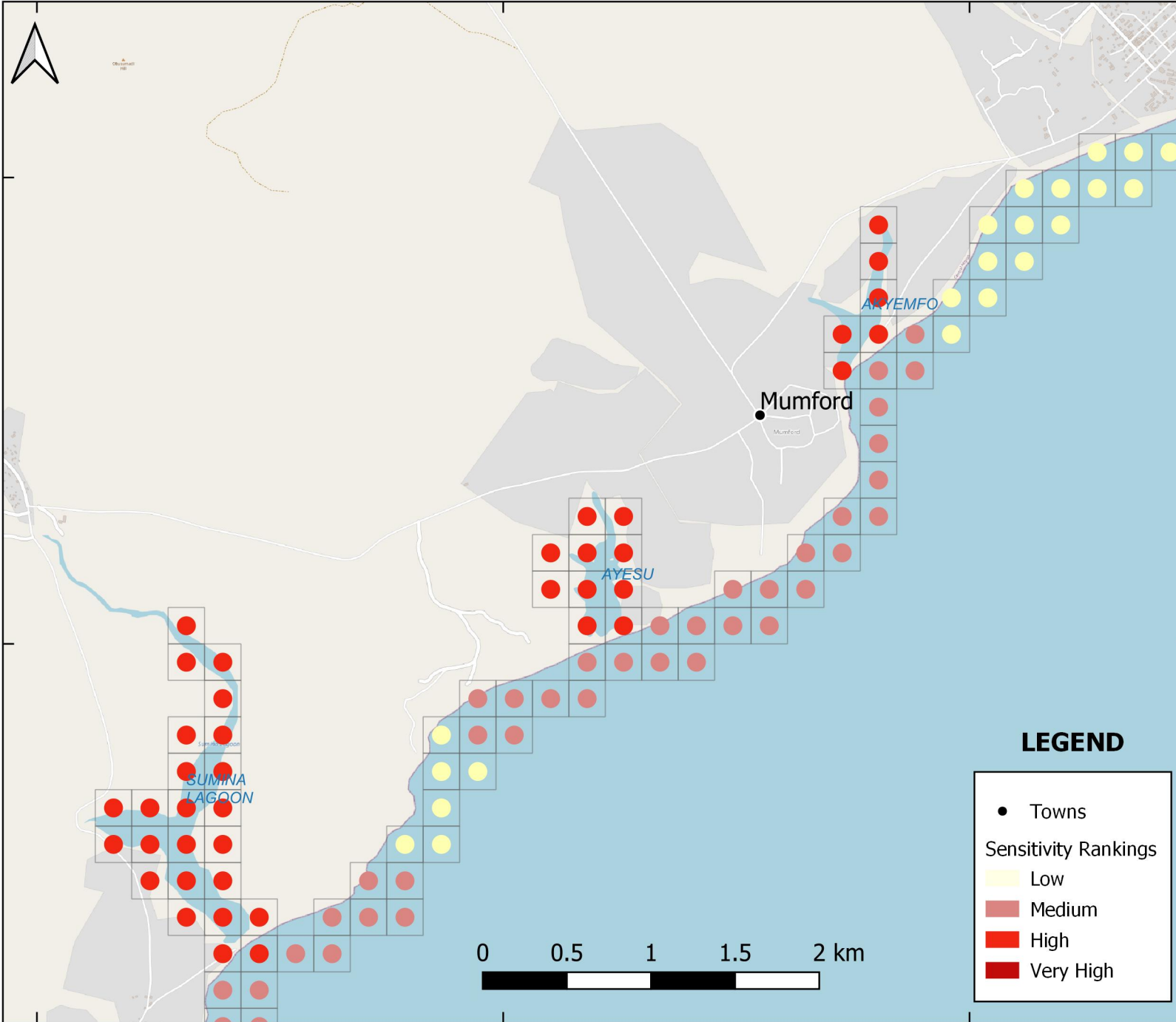
-0°45'0.00"

5°16'30.00"

5°16'30.00"

5°15'0.00"

5°15'0.00"



-0°48'0.00"

-0°46'30.00"

-0°45'0.00"

Ecological Sensitivity Atlas Map 52



PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with moderate slope. There is exposed rock with low-moderate slope at Dwomba. There are three lagoons in the area, namely the Sumina, the Ayensu and the Akyemfo.

Sumina and Ayensu lagoons are semi-closed and seasonally connected to the sea. The Akuemfu lagoon is a closed type with marshland and floodable margins. This lagoon will not be affected by an oil spill at sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteria delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

Sumina and Ayensu Lagoons
The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Vegetation: There are mangroves around the Ayensu lagoon.

Birds: Sumina and Ayensu lagoons are feeding sites for birds including: Grey heron, Reef heron, Little egret and Black-winged stilt.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priophthalmus kaeruti*, freshwater species such as the tilapia *Oreochromis niloticus* and *Tilapia zillii* and when the lagoon is open marine species such as *Albula vulpes* and *Lutjanus fulgens*.

When the sandbar breaks Sumina and Ayensu lagoons are nursery grounds for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

LEGEND

● Towns

Sensitivity Rankings

Low

Medium

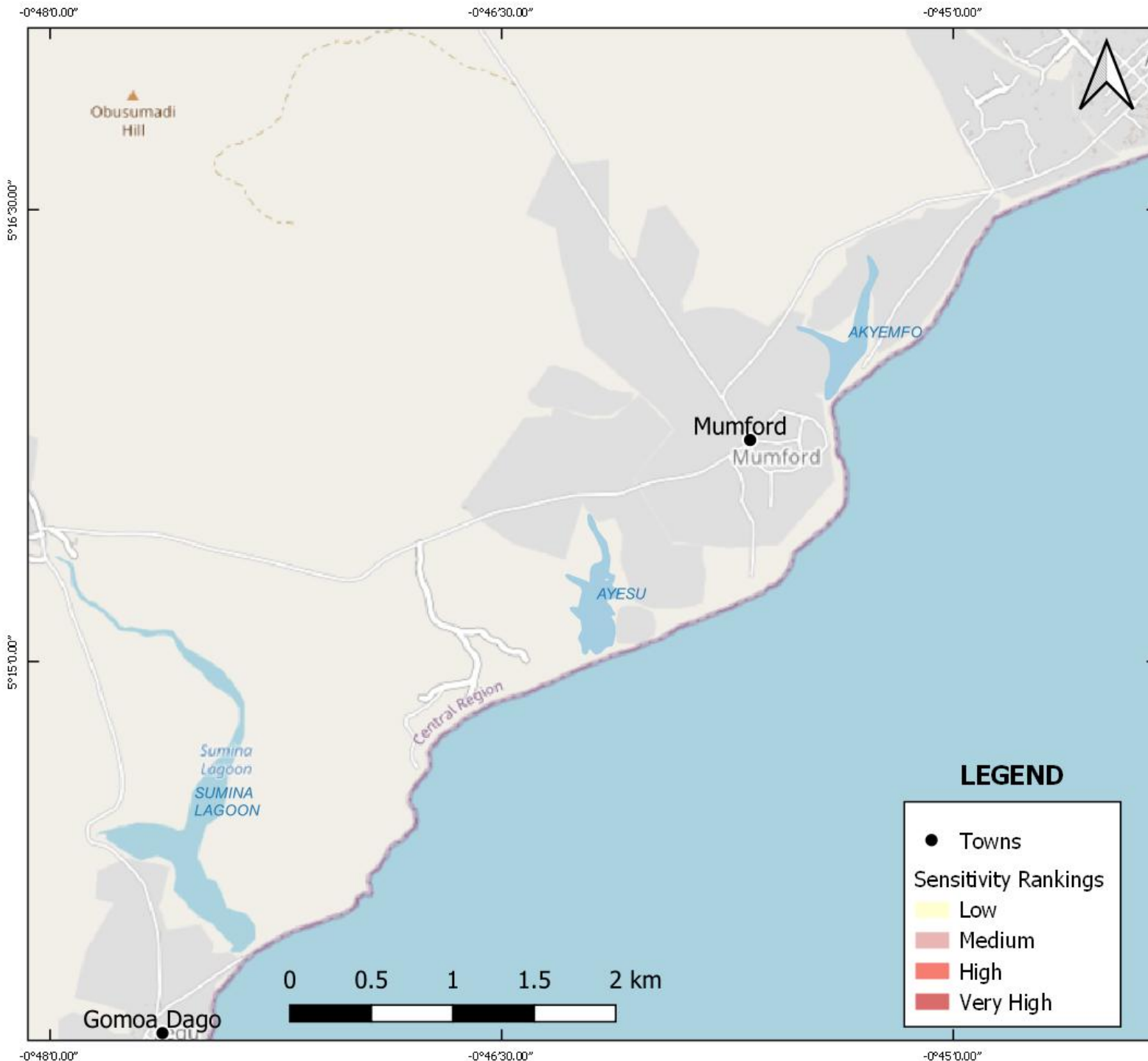
High

Very High



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development Programme (OfD). All Rights Reserved.

**Socio-economic Sensitivity Atlas
Map 52**



PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with moderate slope. There is exposed rock with low-moderate slope at Dwomba. There are three lagoons in the area, namely the Sumina, the Ayensu and the Akyemfo. Sumina and Ayensu lagoons are semi-closed and seasonally connected to the sea. The Akyemfo lagoon is a closed type with marshland and floodable margins. This lagoon will not be affected by an oil spill at sea.

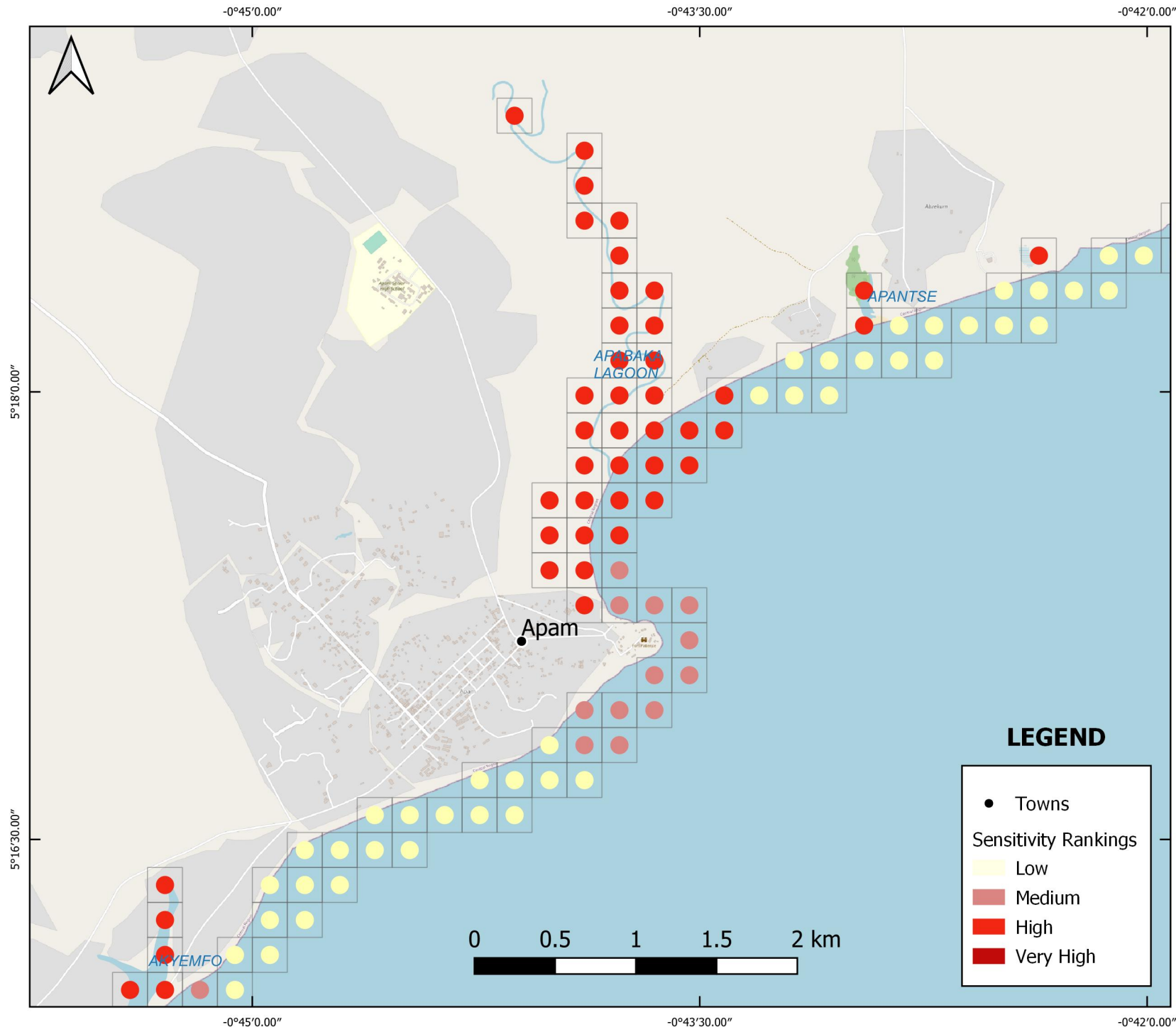
HUMAN ACTIVITY

Coastal Fishery: Mumford has four landing beaches namely; Ahwiasinmu, Ayesevano, Akyemfompoano and Mumford Main. The fishing methods used here include line nets, beach seining, lobster nets, set nets and all nets.

Industrial/Domestic utilization: There are saltponds in Sumina lagoon.



Ecological Sensitivity Atlas Map 53



PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with moderate slope. There are rocks with low to moderate slope at Apam. There are two lagoons in the area, the Apabaka Lagoon and the Apantse Lagoon. The Apabaka is an open lagoon with permanent connection to the sea. The Apantse is a closed lagoon and will therefore not be affected by an oil spill at sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Sargassum vulgare*, *Dictyota delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnium sp.*

Apabaka Lagoon

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

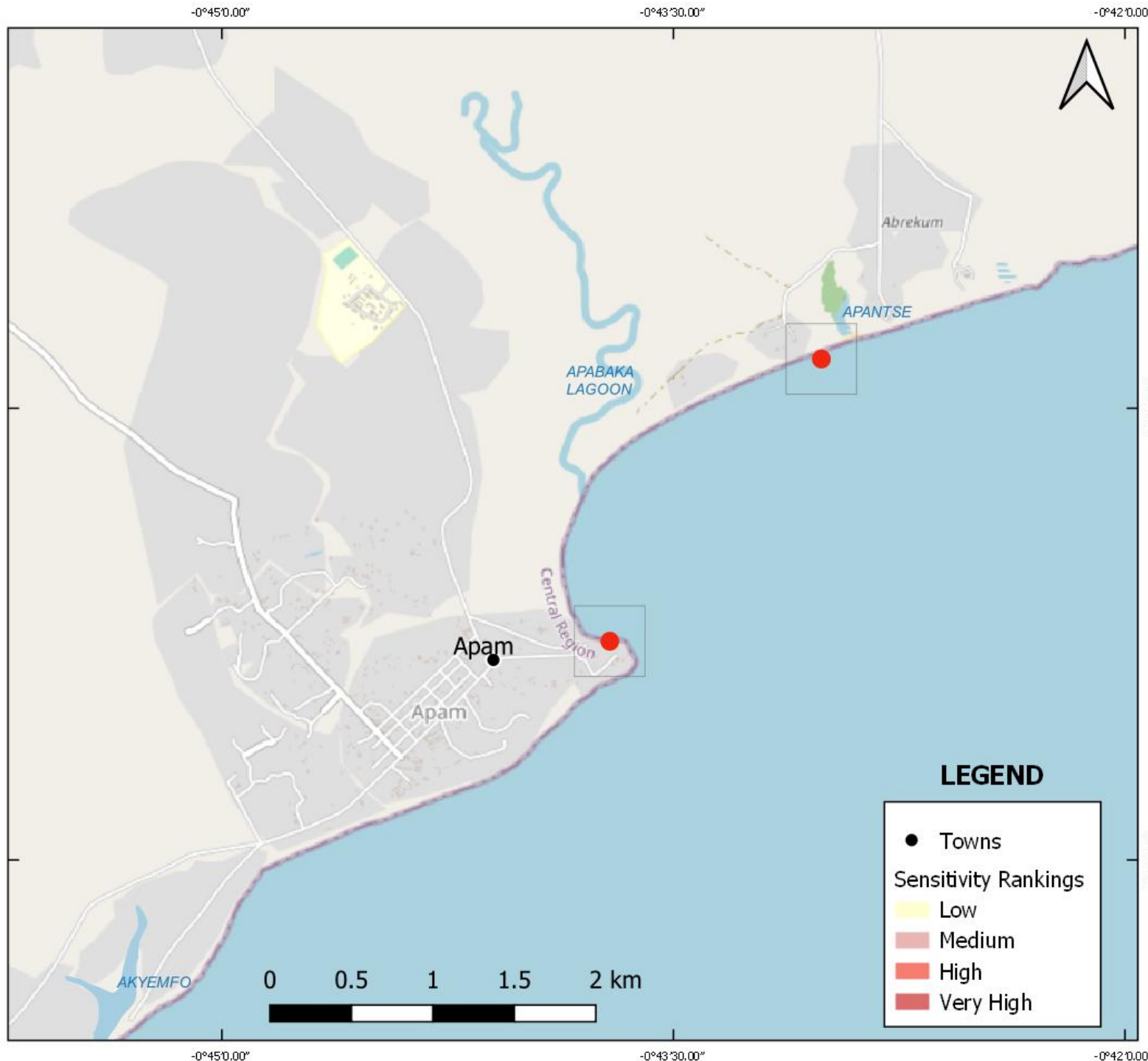
Birds: The Apantse and the Apabaka are feeding sites for waterfowl including Reef heron, Little egret and Black winged stilt.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanocheilus* and the mudskipper *Priopthalmus kaelruti*, freshwater species such as *Oreochromis niloticus* and *Tilapia zillii*, and marine species such as *Albula vulpes* and *Lutjanus fulgens*.

The lagoon is a nursery ground for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.



**Socio-economic Sensitivity Atlas
Map 53**



PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with moderate slope. There are rocks with low to moderate slope at Apam. There are two lagoons in the area, the Apabaka Lagoon and the Apanse Lagoon. The Apabaka is an open lagoon with permanent connection to the sea. The Apanse is a closed lagoon and will therefore not be affected by an oil spill at sea.

HUMAN ACTIVITY

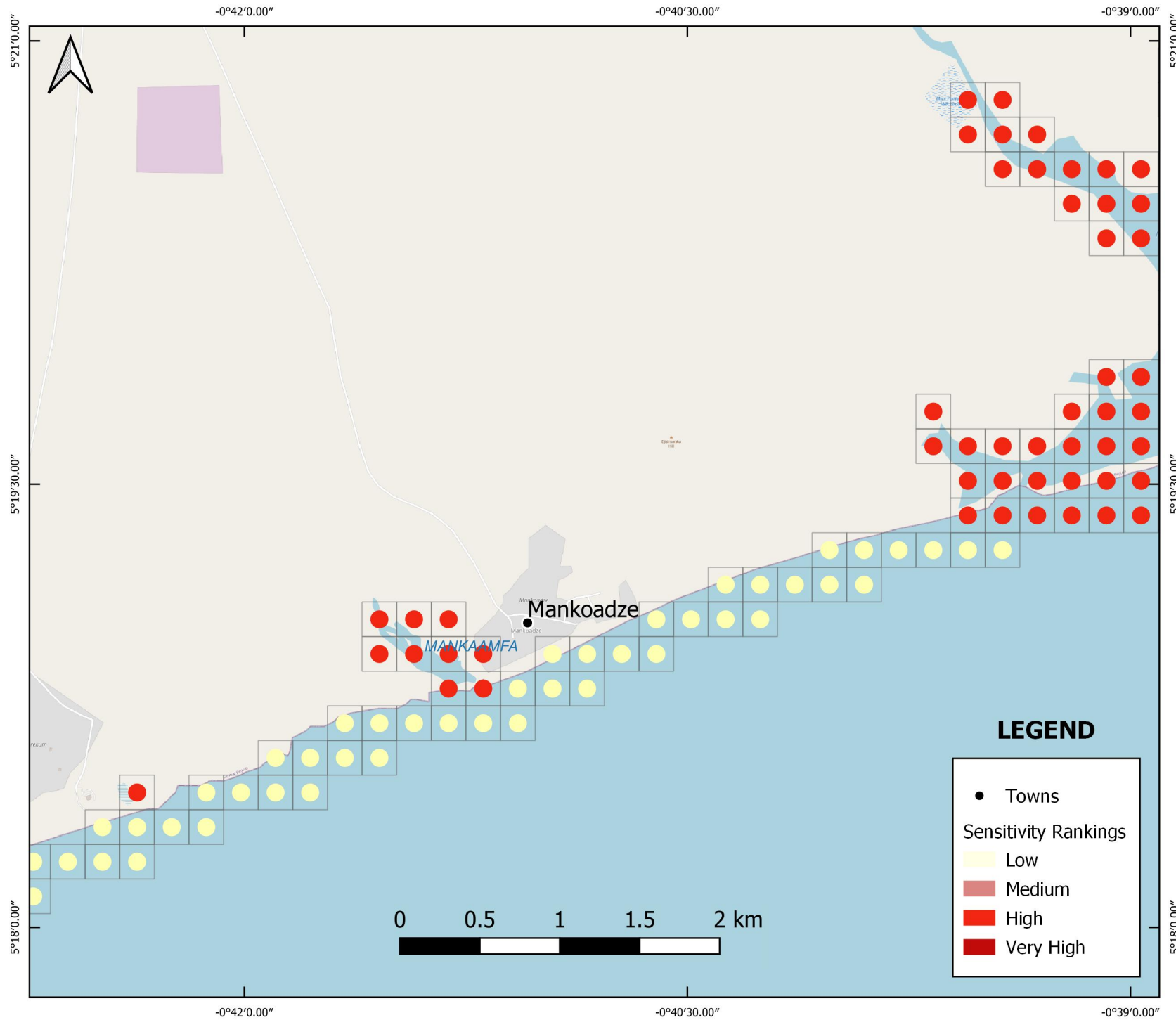
Coastal Fishery: Apam has four landing beaches namely Apam Main, Alata, Abura and Akwabirem where the main fishing methods are line and set nets with ali and lobster nets being used to a lesser extent. Abrekum has one landing beach and the main fishing method used is set netting.

Industrial/Domestic utilization: There is salt extraction in the Apabanka lagoon.

Recreation/tourism: There is a public bathing beach at Apam. There is an old fort at Apam, Fort Leysaamsheid (Fort Patience) built by the Dutch in 1697. It is now a rest house.



Ecological Sensitivity Atlas Map 54



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. There is a lagoon in the area, the Mankaamfa lagoon, which is a closed type without connection to the sea. It will therefore not be affected by an oil spill at sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Mankaamfa Lagoon.

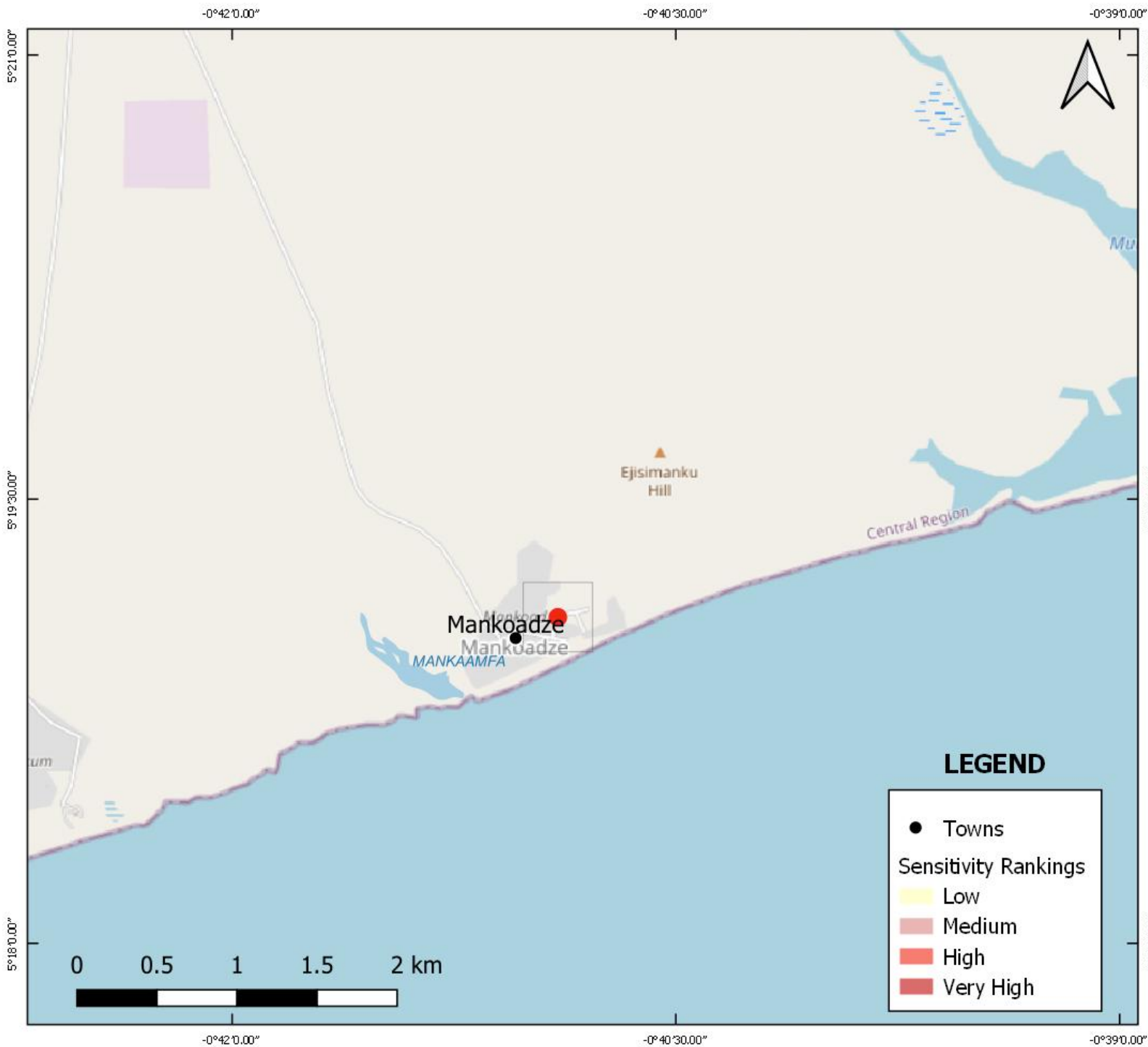
Birds: The Mankaamfa Lagoon is feeding site for birds including Reef heron, Little egret and Black-winged stilt.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



**Socio-economic Sensitivity Atlas
Map 54**



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. There is a lagoon in the area, the Mankaamfa lagoon, which is a closed type without connection to the sea. It will therefore not be affected by an oil spill at sea.

HUMAN ACTIVITY

Coastal Fishery: Mankoadze has three landing beaches namely Etselwada, Ewuraba Ntem and Kofi Krom. The main fishing gears used are set nets.

Industrial/Domestic utilization: There are saltponds in Mankaamfa lagoon.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Ecological Sensitivity Atlas Map 55



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. Muni Lagoon is situated in the area. This lagoon is a shallow, saline and semi-closed coastal lagoon. It is closed during the dry season and it is surrounded by flood plains and sand flats.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity. Intertidal rocks covered by abundant algal growth which are exposed at low tide are encountered on the southern coast of Winneba. This habitat is very important as nursery area for fish.

Muni Lagoon

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Protection: Muni Lagoon was designated a Ramsar site in 1992 (Ramsar site no 563).

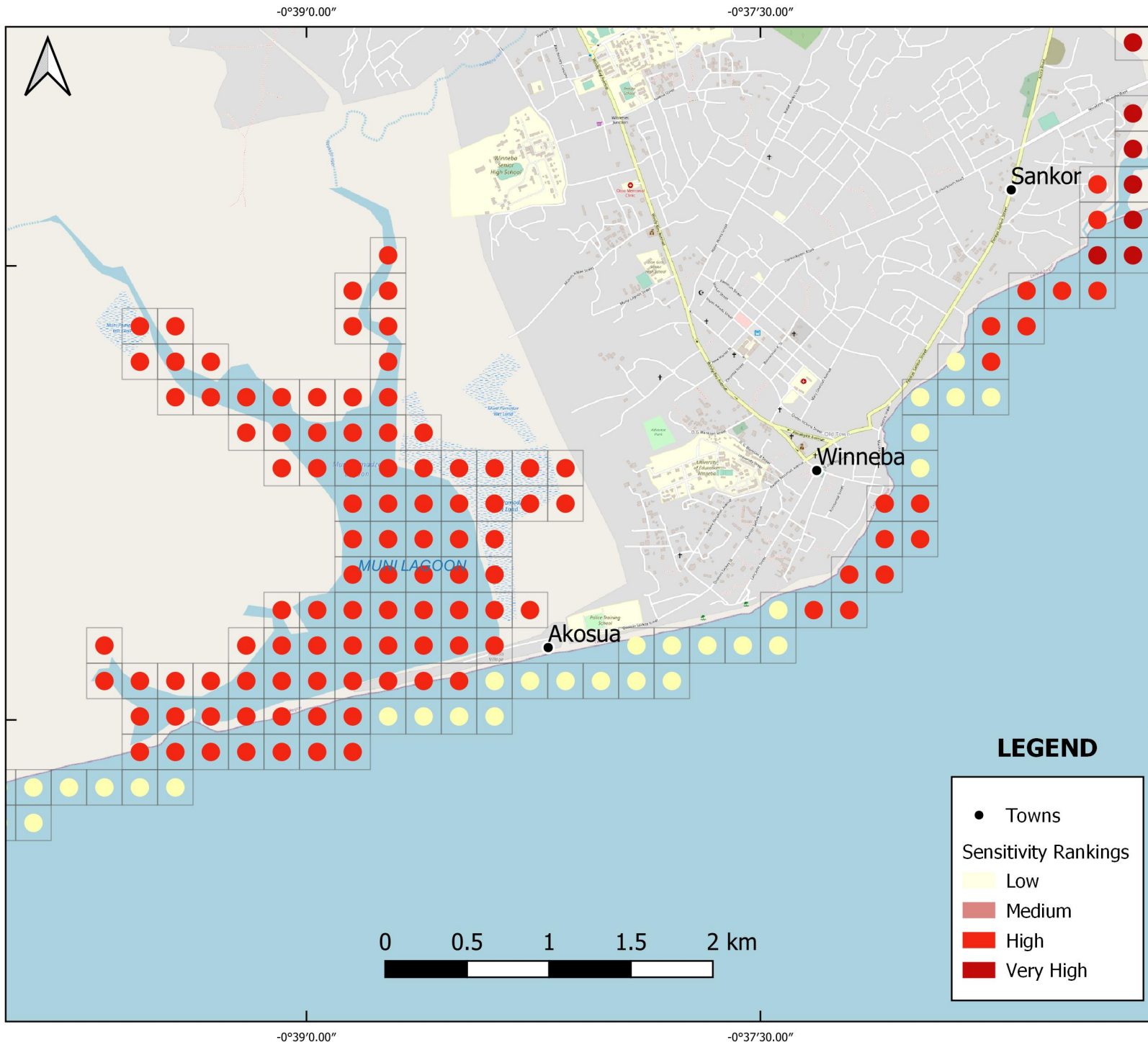
Vegetation: In the northern part of the lagoon there is a mangrove marginally covered with *Avicennia africana* mangroves. The northeastern and eastern part of the lagoon is swampy and seasonally flooded. The vegetation in this area consists mainly of *Sesuvium portulacastrum* and *Paspalum vaginatum*.

Birds: Muni lagoon is an important feeding, breeding and roosting site for waterfowl such as terns, waders, and herons. It is a wintering site for Palearctic birds. The site is particularly important for terns (Sandwich tern, Common tern). Other species include White-faced tree duck, Grey plover, Sanderling, Curlew, Curlew sandpiper, Marsh sandpiper and Black-winged stilt. Seashore bird populations are highest from August to April.

Fish and crustaceans: The lagoon is a nursery site for fish and crustaceans. Fish species include the cichlid *Sarotherodon melanotheron*, *Tilapia zillii* and *Liza falcipinnis*. Crustaceans include crabs *Callinectes latimanus*, *Uca tangerii*.

Protected species: Three species of marine turtles *Lepidochelys olivacea*, *Chelonia mydas* and *Dermochelys coriacea* are reported to nest on the beaches.

Other fauna: Other fauna include: gastropods *Tympanotonus fuscatus*, *Turitella meta* and oysters *Crassostrea gasar*.

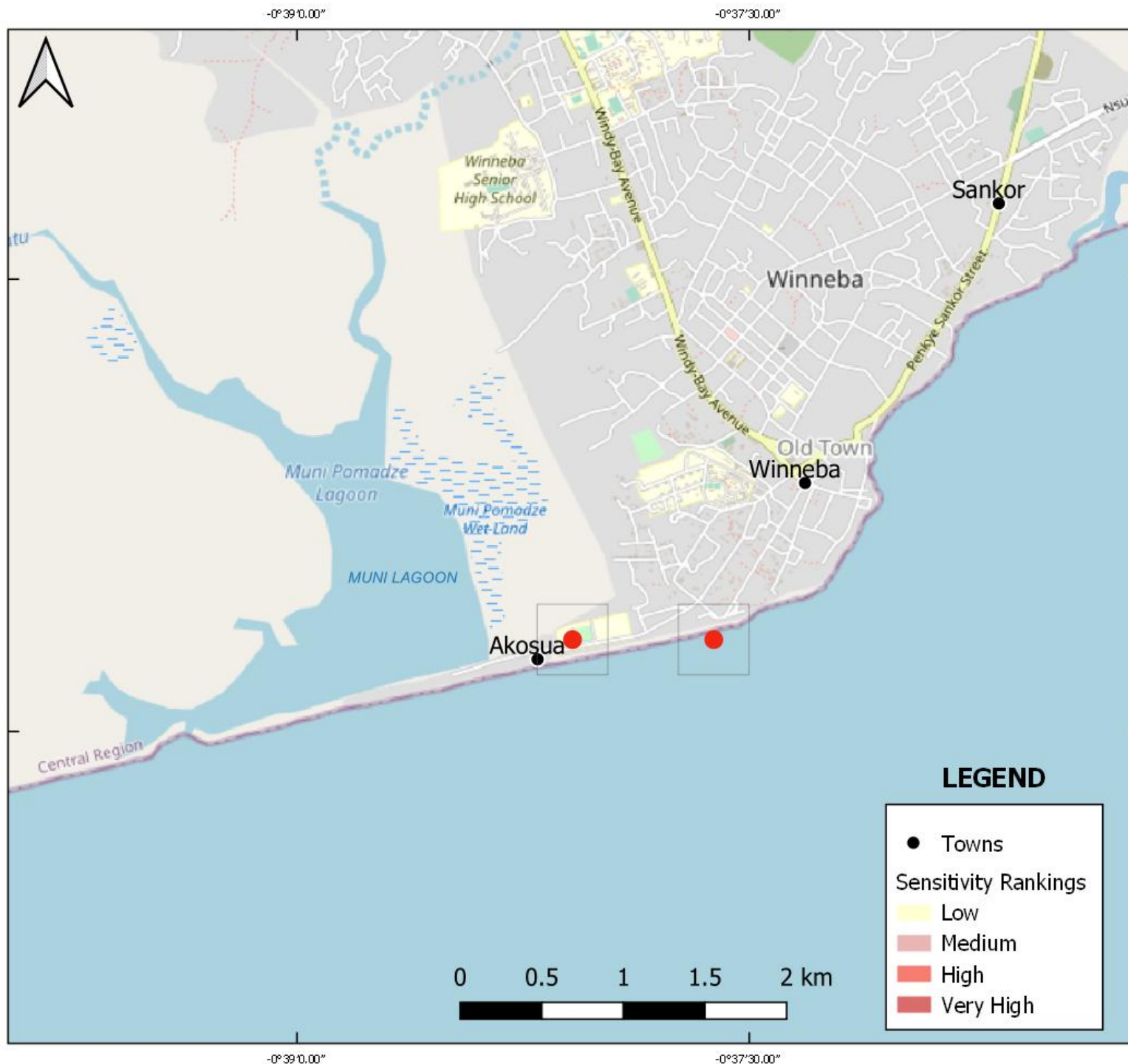


LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Socio-economic Sensitivity Atlas Map 55



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. Muni Lagoon is situated in the area. This lagoon is a shallow, saline and semi-closed coastal lagoon. It is closed during the dry season and it is surrounded by flood plains and sand flats.

HUMAN ACTIVITY

Coastal Fishery: Winneba has four landing beaches located at Ayipey, Aboadze, Penkyi and Awonakrom. The main fishing methods used are purse seining, line nets (mainly Ayipey) and beach seining (mainly Awonakrom).

Lagoon Fishery: Inhabitants of Winneba and Akosua village fish and catch crabs in the Muni lagoon.

Industrial/Domestic utilization: There are two salt ponds at Muni Lagoon. Domestic water supply to the entire township of Winneba is extracted 4 km upstream from the estuary.

Recreation/tourism: There are hotels at the water front at Winneba and a public beach.

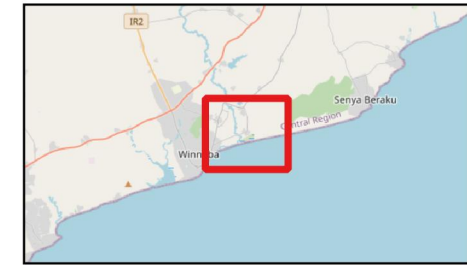
Other: Muni Lagoon is a source of fuel wood for the local communities

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Ecological Sensitivity Atlas Map 56



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. The open Oyibi lagoon is connected to the sea in the area.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Intertidal rocks covered by abundant algal growth, which are exposed at low tide, are encountered west of the mouth of Oyibi lagoon. This habitat is very important as nursery area for fish.

Oyibi Lagoon

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Vegetation: Extensive mangrove stands fringe the Oyibi Lagoon.

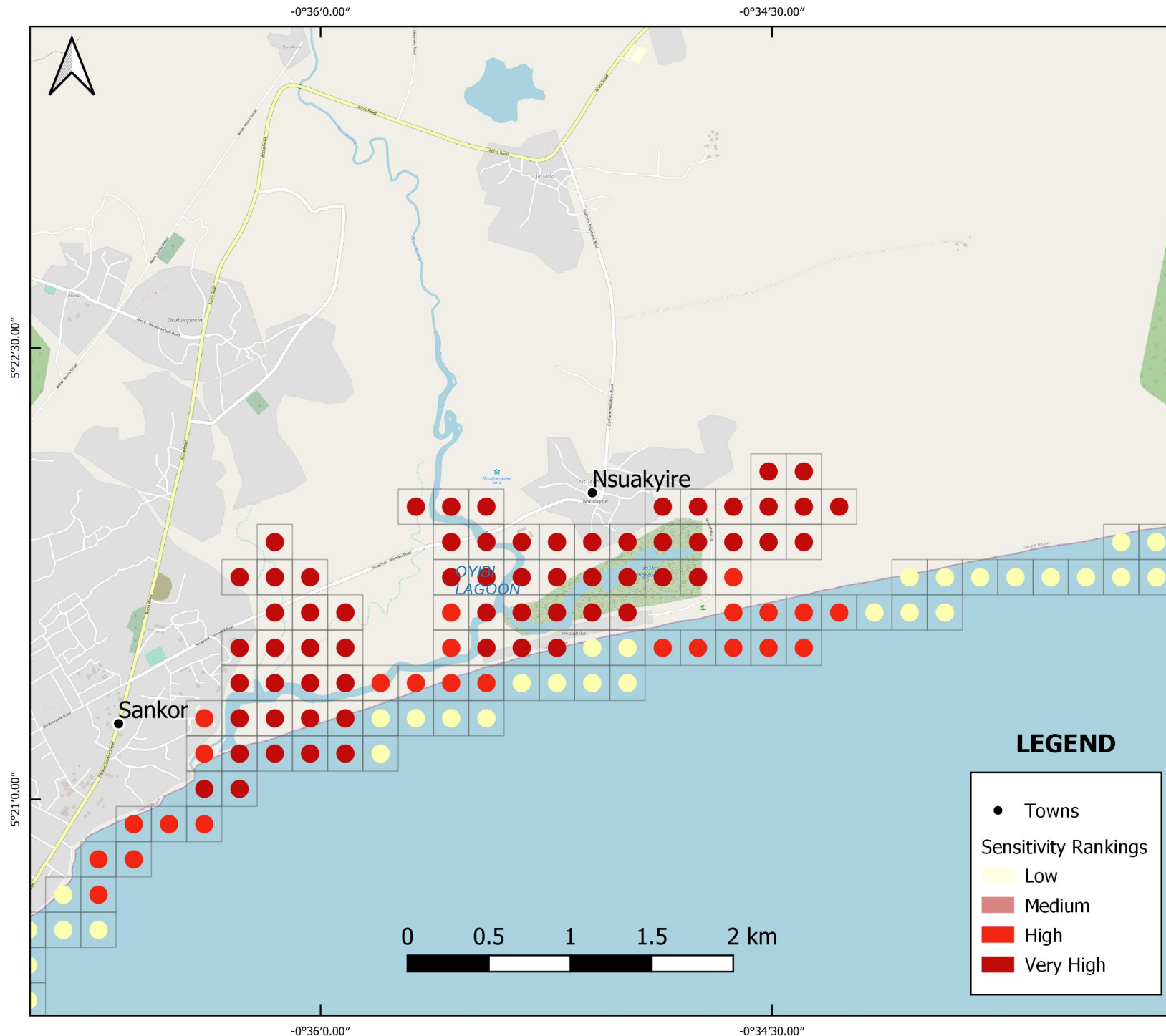
Birds: The Oyibi Lagoon is a feeding site for waterfowl including waders. Common species are Sandwich tern, Common tern, White-faced tree duck, Grey plover, Sanderling, Curlew, Curlew sandpiper, Marsh sandpiper and Black winged stilt.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priopthalmus kaelruti*, freshwater species such as *Oreochromis niloticus* and *Tilapia zillii*, and marine species like *Albula vulpes* and *Lutjanus fulgens*.

The Oyibi Lagoon is a nursery ground for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.* *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

Other: Oysters and clams occur in the lagoon.

Turtle nesting sites: The beach east of the Oyibi Lagoon is noted for turtle nesting.



LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High

**Socio-economic Sensitivity Atlas
Map 56**



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. The open Oyibi lagoon is connected to the sea in the area.



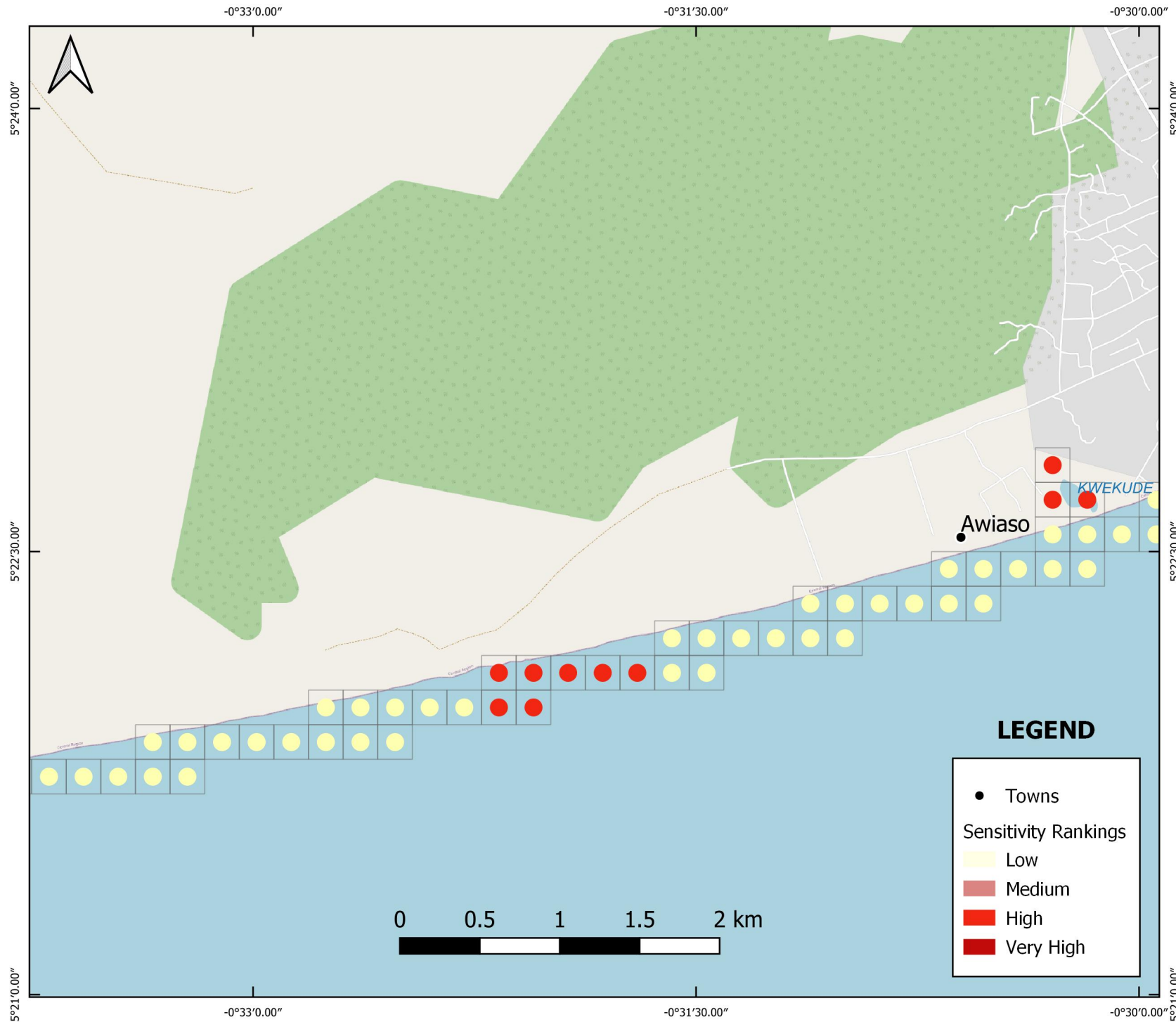
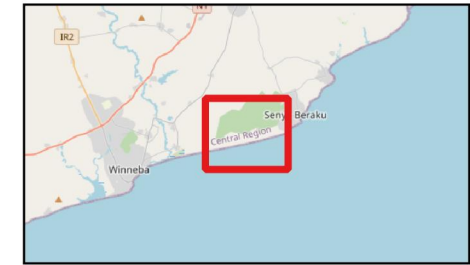
LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development programme (O4D). All Rights Reserved.

Ecological Sensitivity Atlas Map 57



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Turtle nesting: There is a stretch of the beach noted for turtle nesting

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High

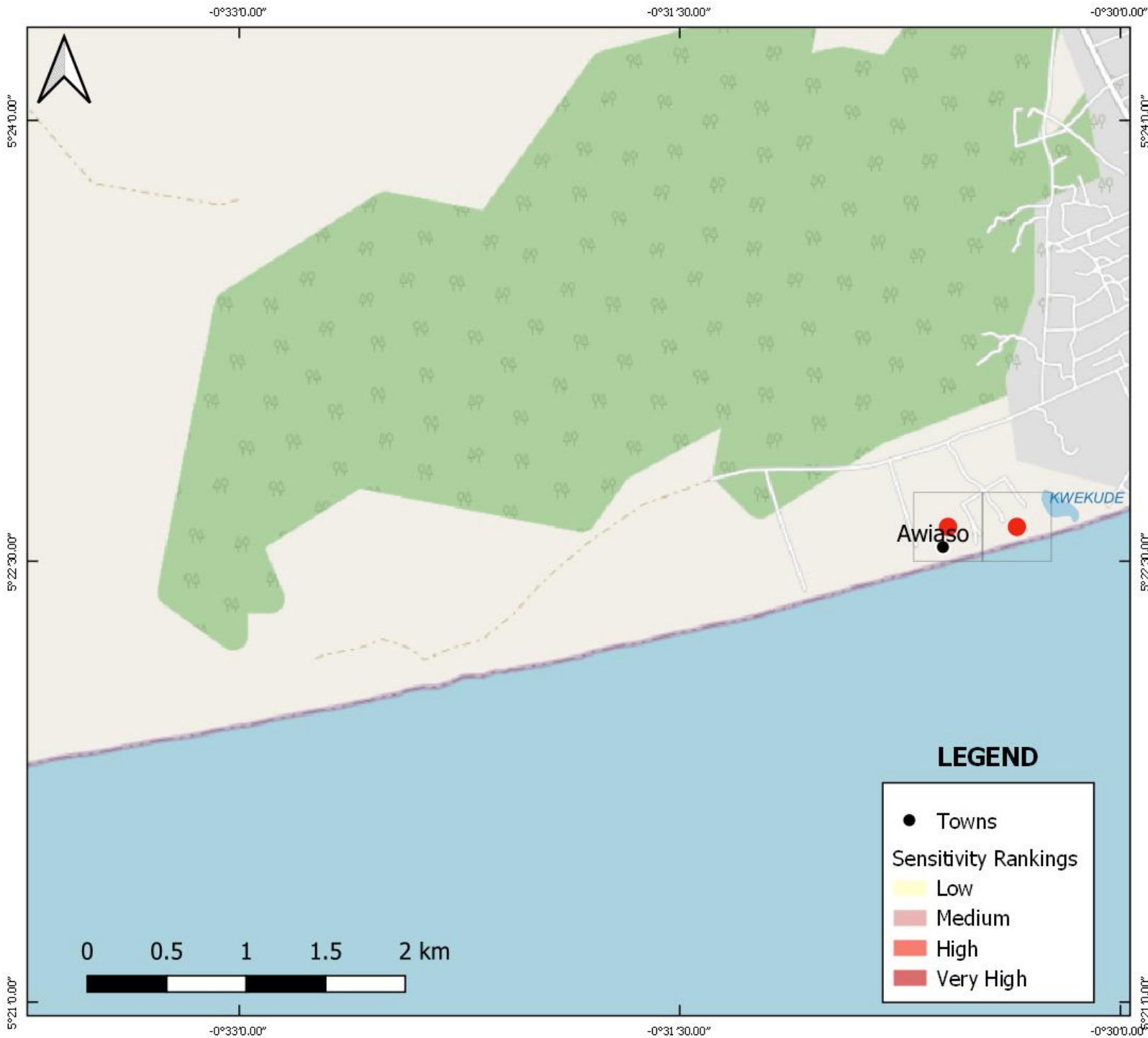


**Socio-economic Sensitivity Atlas
Map 57**



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope.



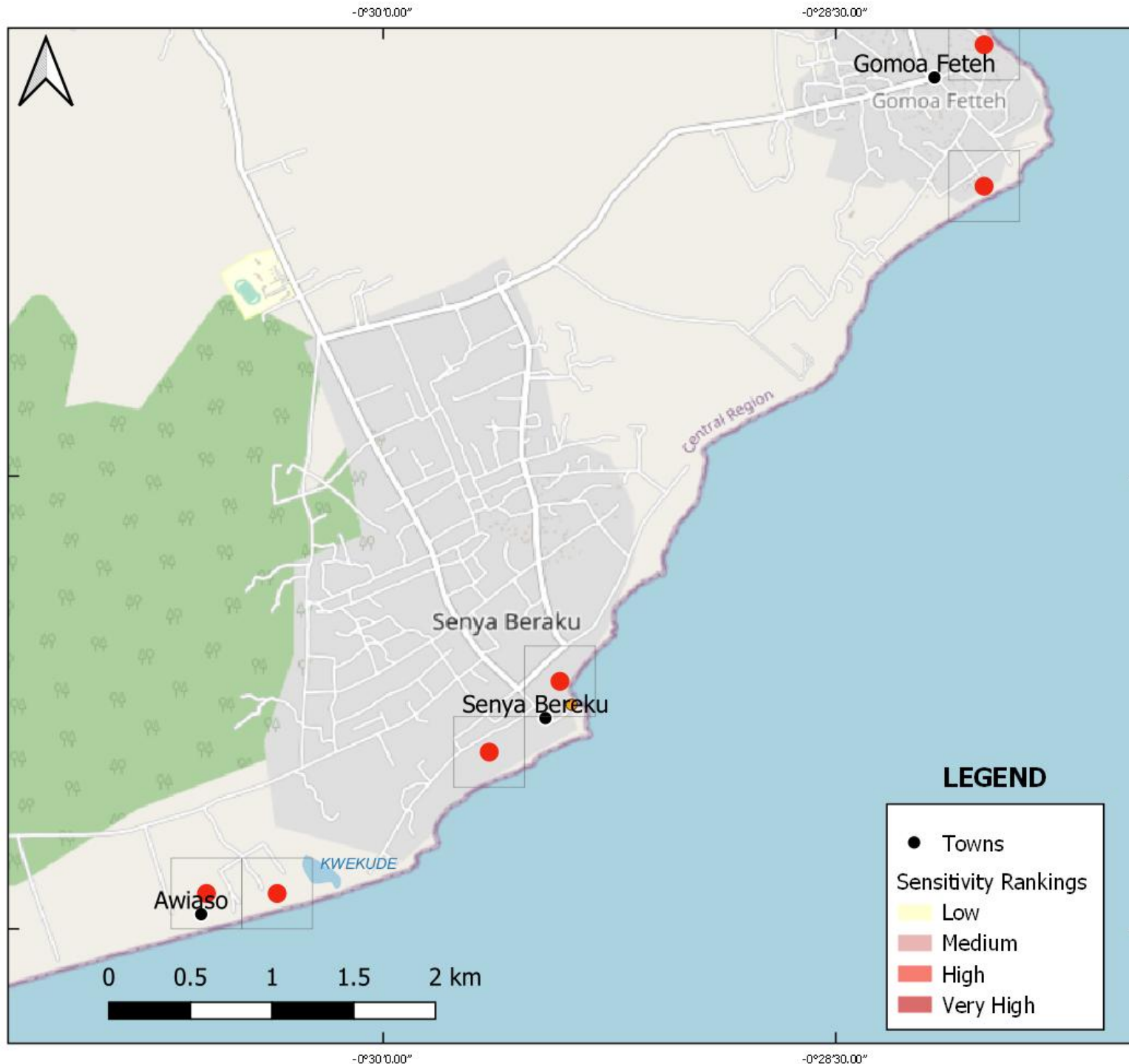
LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development programme (O4D). All Rights Reserved.

**Socio-economic Sensitivity Atlas
Map 58**



PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with a moderate slope. At Senya - Beraku there are rocky flats with abundant crevices (tide pools).

There is a lagoon in the area, the Kwekude lagoon. This lagoon is closed without connection to the sea and will therefore not be affected by an oil spill at sea.

HUMAN ACTIVITY

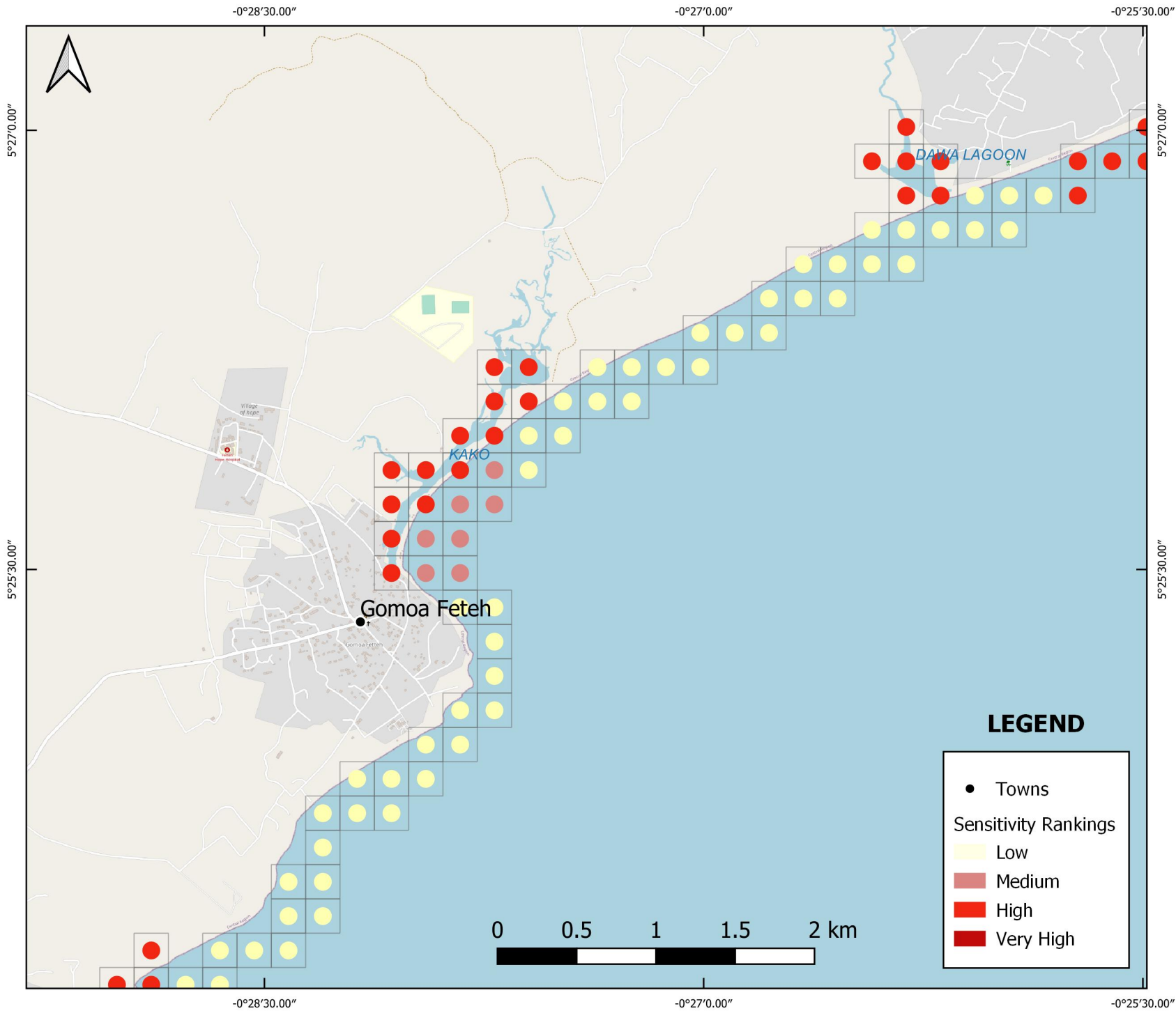
Coastal Fishery: Senya Beraku has three landing beaches located at Mbanympano, Odumsano and Ahwiaso. The main fishing practices are purse seining and line fishing (mainly Mbanympano), and ali net and beach seining to a lesser extent.

Recreation/tourism: There is a recreational beach at Senya-Beraku. There is an old fort in Senya Beraku, the Fort Good Hope, built by the Dutch in 1704. In the 1980s the fort was restored as a joint historical monument and a rest house.

LEGEND

- Towns
- Sensitivity Rankings**
- Low
- Medium
- High
- Very High





Ecological Sensitivity Atlas Map 59



PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with moderate slope. There are steep exposed rocks at Fetteh.

There is a semi closed lagoon in the area, the Kako lagoon which is connected to the sea seasonally. There is also a closed lagoon, the Dawa, without any connection to the sea. This lagoon will therefore not be affected by an oil spill at sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Diclyopterus delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

Kako Lagoon

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Birds: The Kako Lagoon is a feeding site for waterfowl. Common species are Reef heron and Little egret.

Fish and crustaceans: The fish fauna include true lagoon species such as the tilapia *Sarotherodon melanotheron* and the mudskipper *Priophthalmus kaelruti*, freshwater species such as the tilapias *Oreochromis niloticus* and *Tilapia zillii*, and when the lagoon is open marine species like *Albula vulpes* and *Lutjanus fulgens*.

When it is open the Kako lagoon is a nursery grounds for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

LEGEND

● Towns

Sensitivity Rankings

● Low

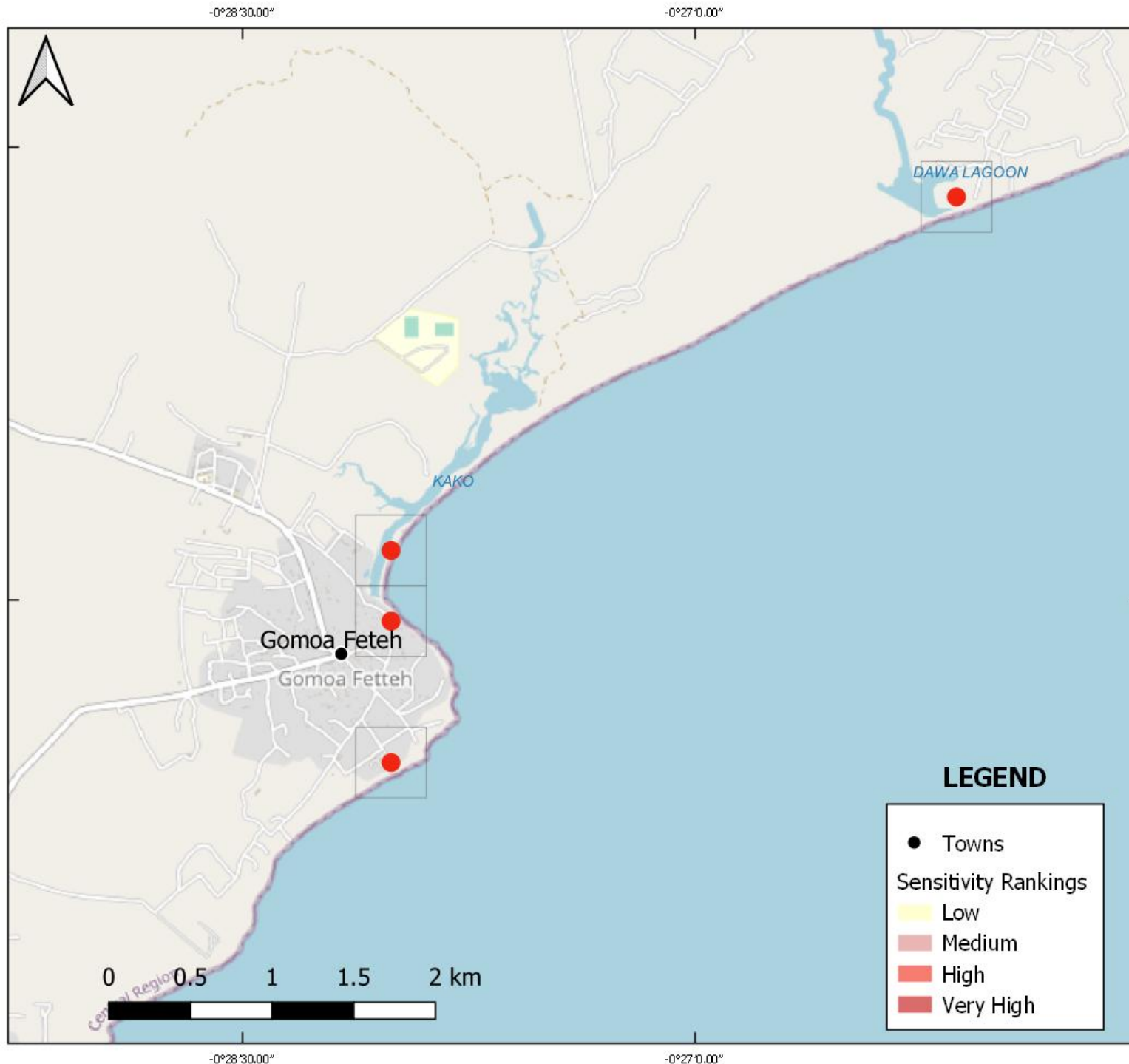
● Medium

● High

● Very High



**Socio-economic Sensitivity Atlas
Map 59**



PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with moderate slope. There are steep exposed rocks at Fetteh. There is a semi closed lagoon in the area, the Kako lagoon which is connected to the sea seasonally. There is also a closed lagoon, the Dawa, without any connection to the sea. This lagoon will therefore not be affected by an oil spill at sea.

HUMAN ACTIVITY

Coastal Fishery: Fetteh has four landing beaches at Mbanyinmpoano, Ayiteykrom, Mbaampoana and Akyiresuadze. The main fishing methods are set nets.

Industrial/Domestic utilization: There are salt ponds in Kako Lagoon.

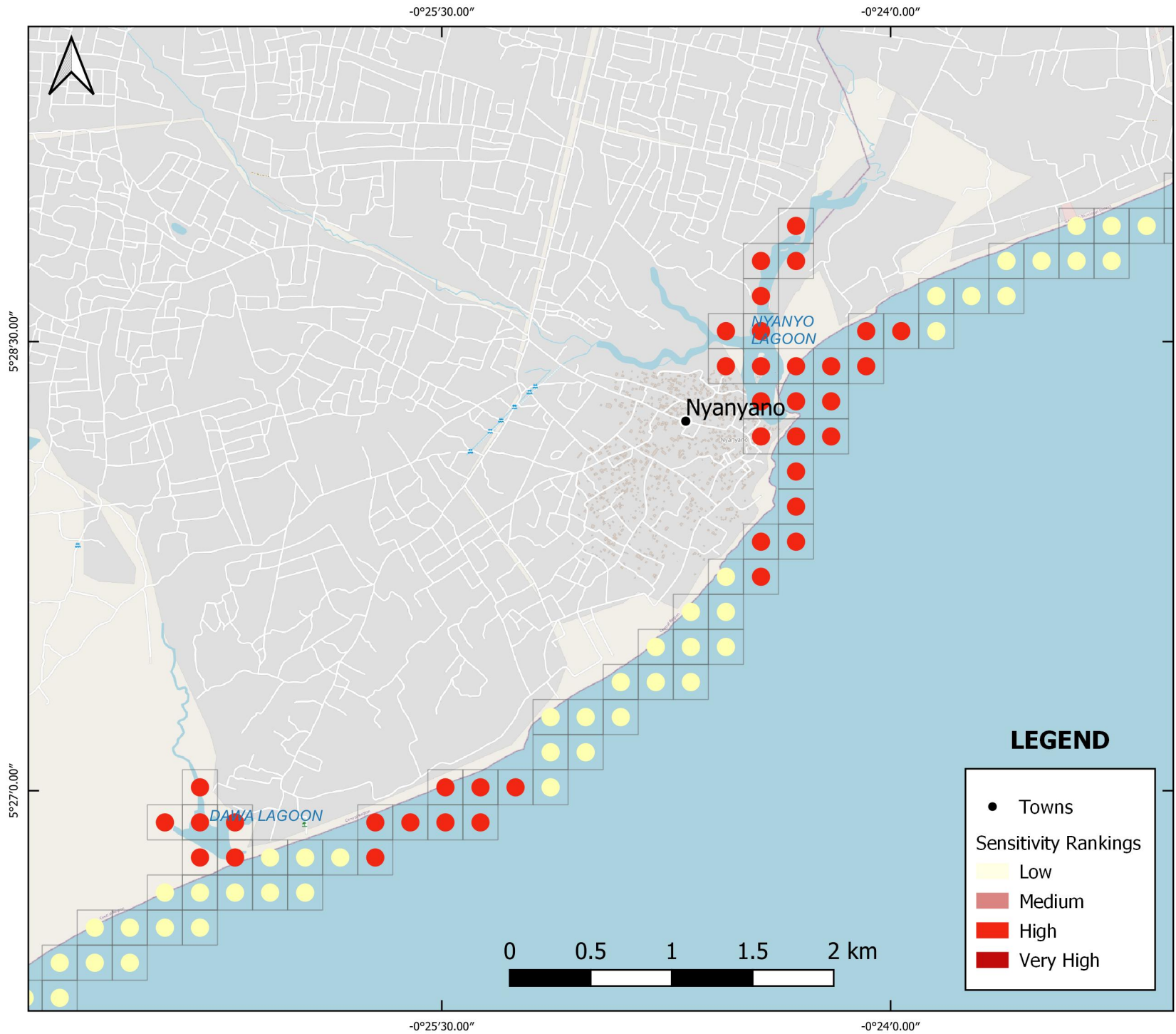
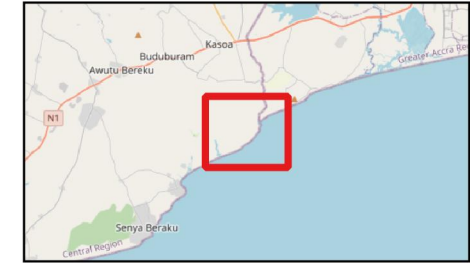
Recreation/tourism: Recreational beaches and a hotel at the waterfront are encountered in Fetteh.

LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



Ecological Sensitivity Atlas Map 60



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope. There is an open lagoon in the area, the Nyanyano, with a permanent connection to the sea. The Dawa lagoon in the southern part of the area is a closed type without any connections to the sea. This lagoon will therefore not be affected by an oil spill at sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Nyanyo Lagoon

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Vegetation: Nyanyo Lagoon is surrounded by mangrove and marshland which is prone to flooding at the margins.

Birds: Nyanyo Lagoon is a feeding site for water fowl including Little egret, Grey heron, Common tern, Little tern, Greenshank, Black-winged stilt, Grey plover, Ringed plover, Curlew sandpiper.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priophthalmus kaelruti*, freshwater species like *Oreochromis niloticus* and *Tilapia zillii*, and marine species like *Albula vulpes* and *Lutjanus fulgens*.

The lagoon is nursery area for marine species that spawn at sea, but have their juvenile forms washed into the lagoon which is used as nursery grounds including among many others the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

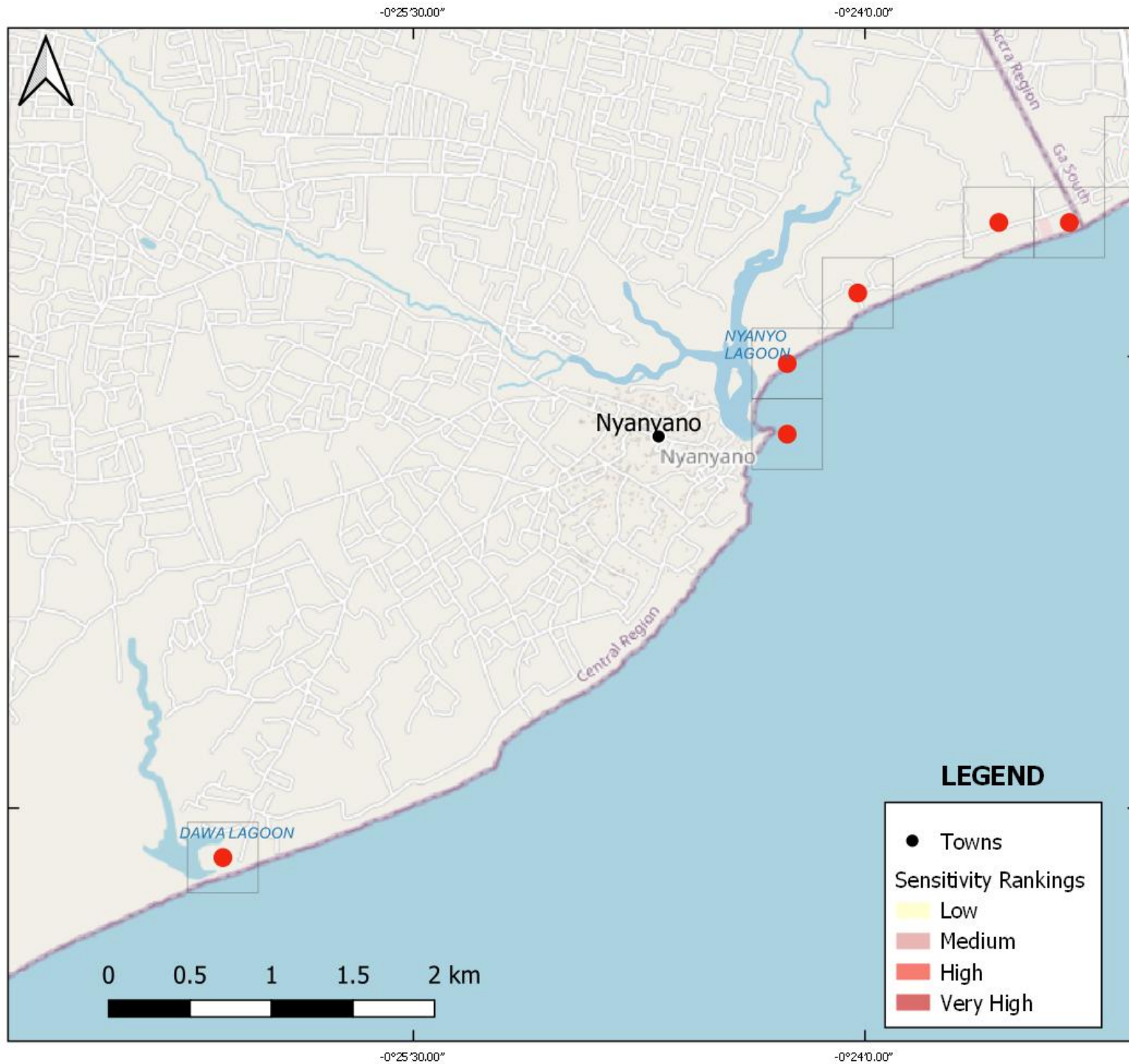
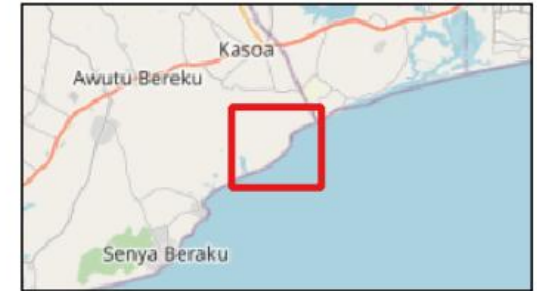
Turtle nesting: There are turtle nesting sites in the area.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



**Socio-economic Sensitivity Atlas
Map 60**



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope. There is an open lagoon in the area, the Nyanyano, with a permanent connection to the sea. The Dawa lagoon in the southern part of the area is a closed type without any connections to the sea. This lagoon will therefore not be affected by an oil spill at sea.

HUMAN ACTIVITY

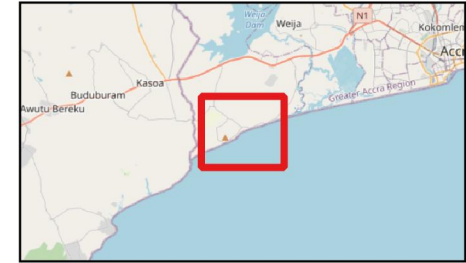
Coastal Fishery: Nyanyano has one landing beach using mainly purse nets and the ali nets for fishing.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Ecological Sensitivity Atlas Map 61

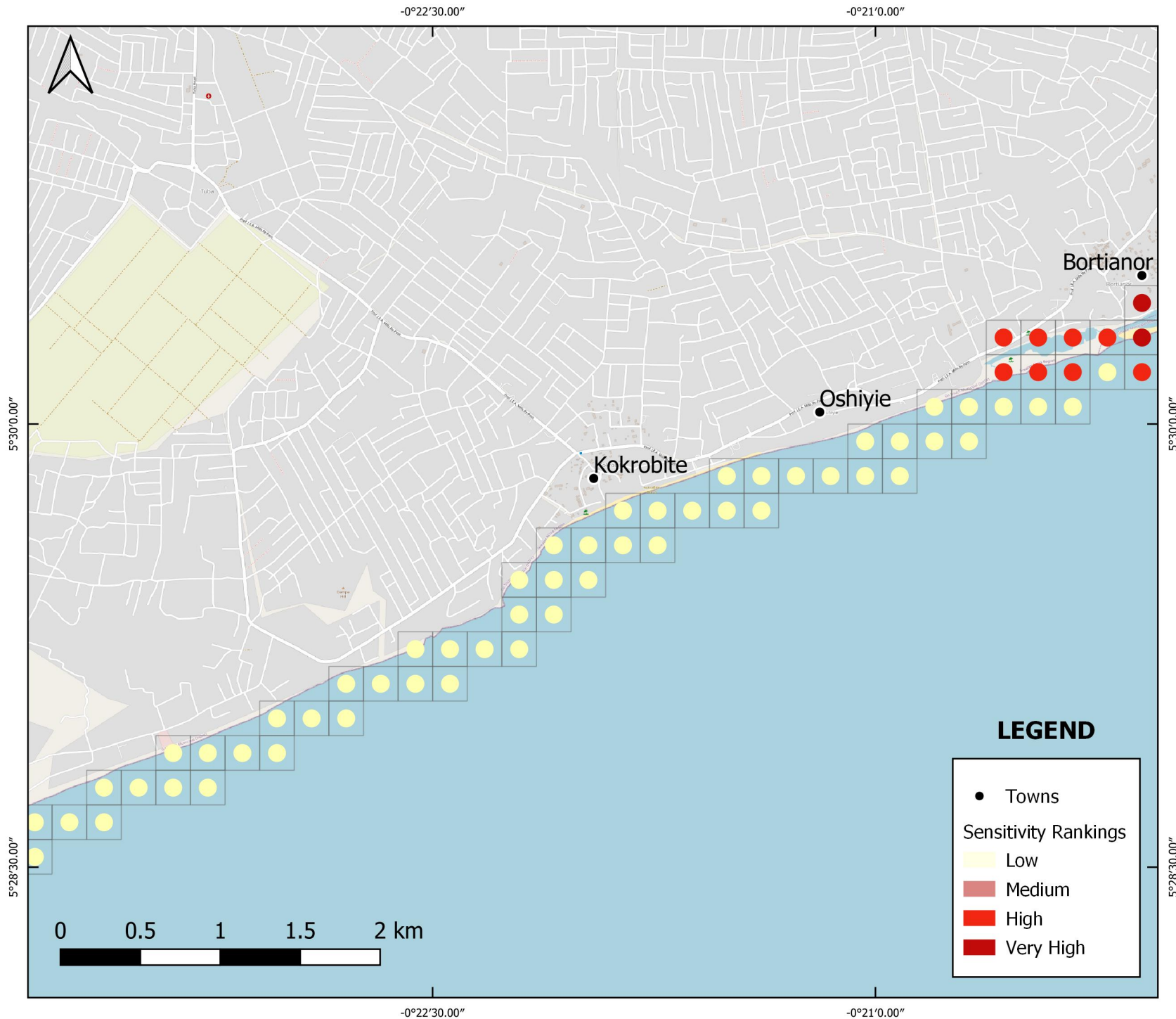


PHYSICAL ENVIRONMENT

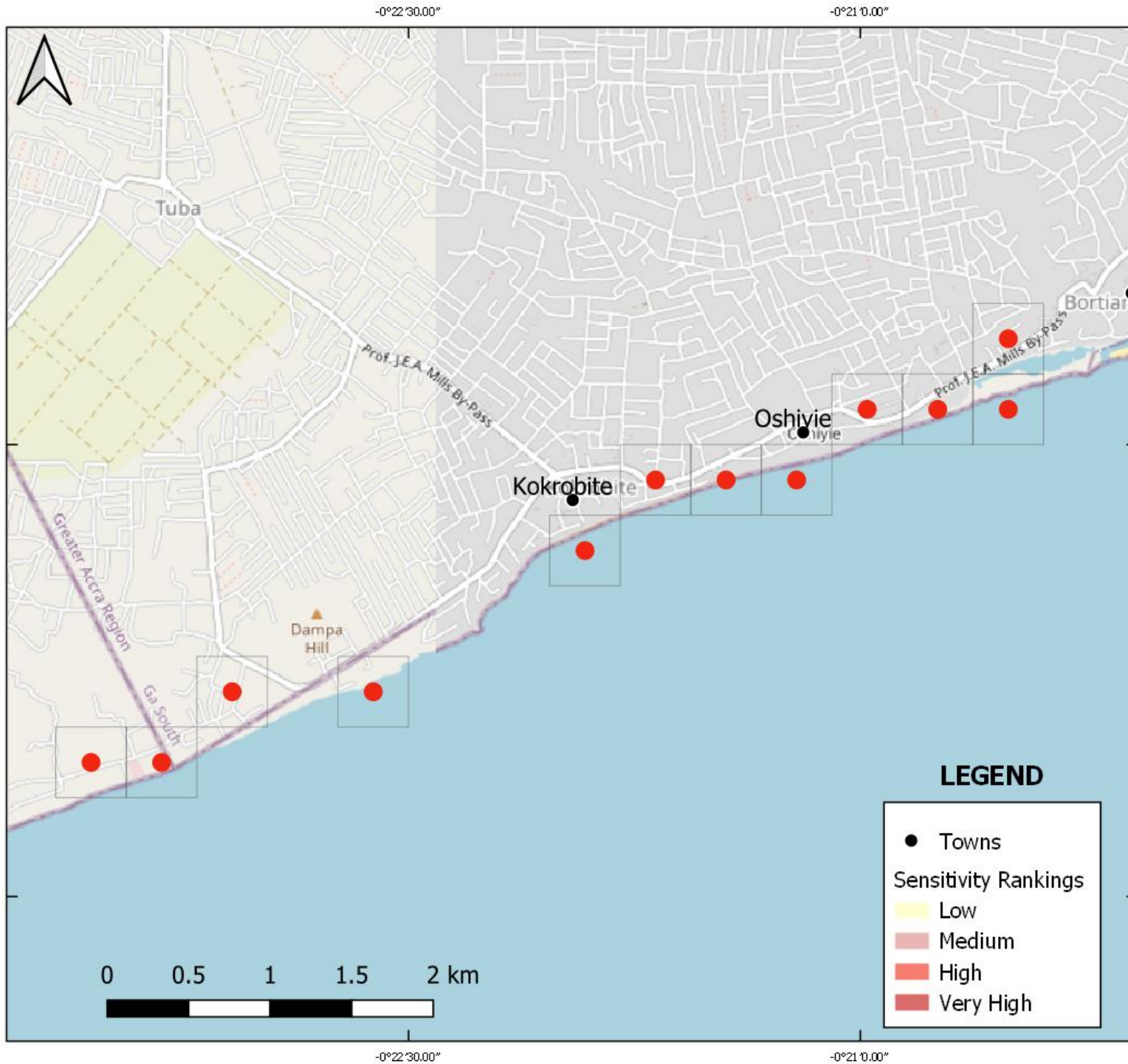
The beach is coarse sand with a moderate slope.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.



**Socio-economic Sensitivity Atlas
Map 61**



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope.

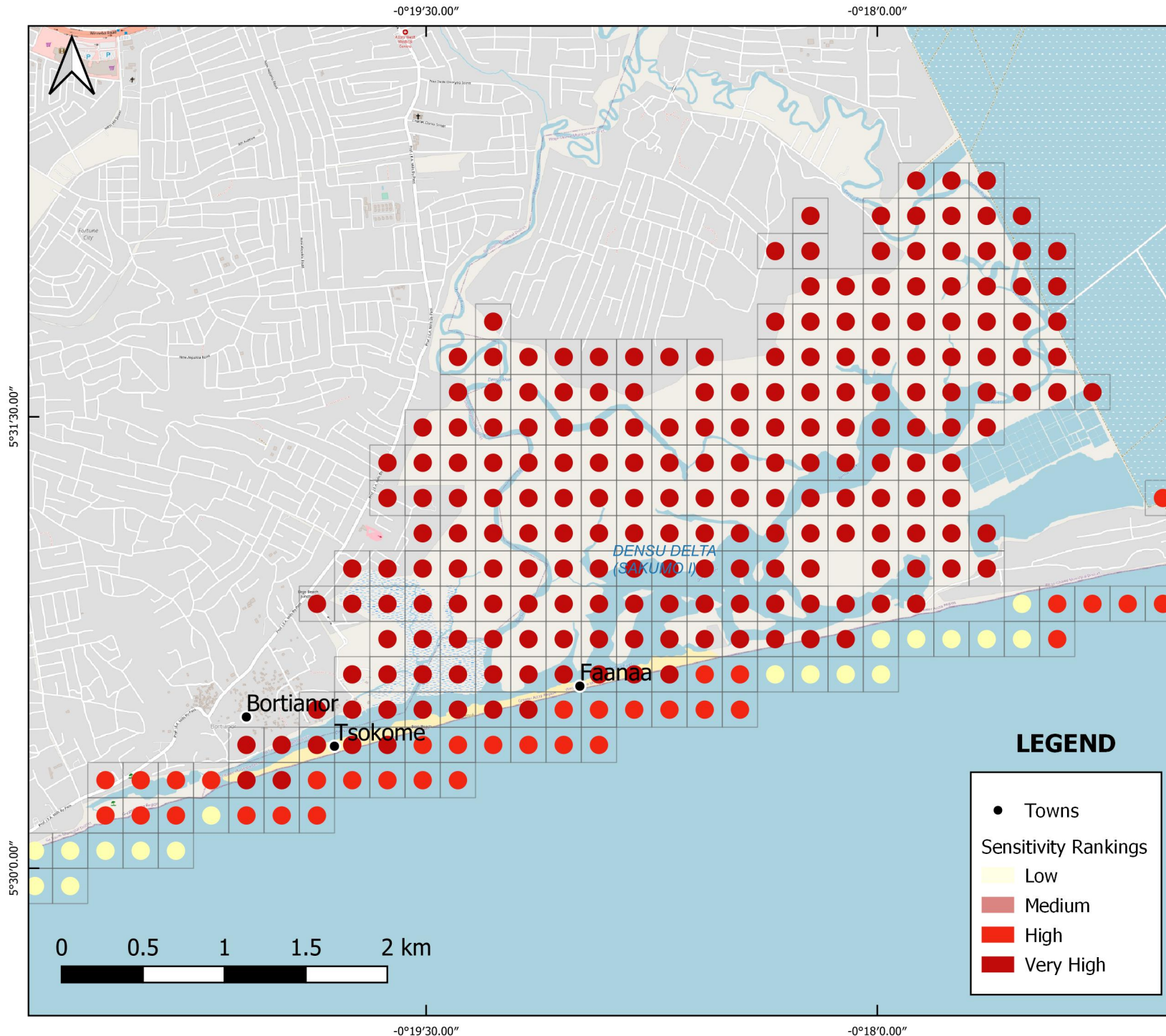
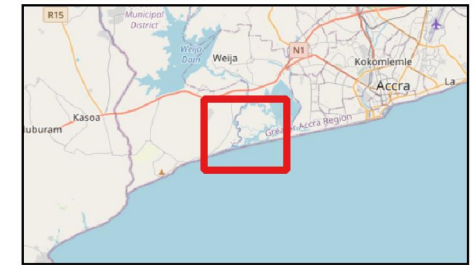
HUMAN ACTIVITY

Coastal Fishery: Kokrobite has a landing beach where set and all nets are used for fishing. Oshiyie has one landing beach practicing both purse and beach seining.

Recreation/tourism: There is a hotel at the waterfront at Langma and one at Krokobite. There is also a popular public beach at Krokobite.



Ecological Sensitivity Atlas Map 62



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. Sakumo I Lagoon (Densu Delta) is situated in the area. The Sakumo Lagoon is semi closed. It is closed most of the year except when water is released from the Weija reservoir.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Sakumo I Lagoon (Densu Flood Plain)

The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Protection: Sakumo I (Densu Floodplain) was designated Ramsar site in 1992 (Ramsar site no 564).

Vegetation: The major mangrove species are the black mangrove *Avicennia germinans* and the button mangrove *Conocarpus erectus*.

Birds: The Densu Flood Plain is particularly important for terns, being the second most important tern site (after Songor) on the Ghana coast. The importance of the Densu flood plain site is further enhanced by its population of Roseate terns, a threatened species. In 2004, the peak count of 200 Roseate terns at this site accounted for approximately 20% of the European breeding population of the rare species. Other water birds, which occur in significant numbers on the site, include waders and herons. The site supports internationally important populations of four species of waders: Curlew sandpiper, Little stint, Spotted redshank and Black-winged stilt. Fifteen other species of water birds occur in nationally important numbers. Seashore birds are most abundant from August to March.

Fish and crustaceans: The lagoon is a nursery site for fish and crustaceans. Fish species include cichlids *Sarotherodon melanotheron* and *Tilapia zillii*, catfish *Clarias sp.*, Bonga *Ethmalosa fimbriata*, Grey mullets *Mugil curema*, *Mugil sp* and *Liza falcipinnis* mudskippers *Periophthalmus sp*. Crustaceans include Swimming blue-legged crab *Callinectes latimanus*, Fiddler crab *Uca tangerii*, prawns *Macrobrachium sp.*, *Parapenaeopsis atlantica* and *Penaeus notialis*.

Other fauna: Other fauna in the lagoon include oysters *Crassostrea tulipa*, gastropods *Tympanotonus fuscatus*, *Turitella meta* and *Tivela tripla* and barnacles *Balanus sp.*

Turtle nesting sites: There are turtle nesting sites at Faana.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Socio-economic Sensitivity Atlas Map 62



PHYSICAL ENVIRONMENT

The beach is coarse sand with moderate slope. Sakumo I Lagoon (Densu Delta) is situated in the area. The Sakumo Lagoon is semi closed. It is closed most of the year except when water is released from the Weija reservoir.

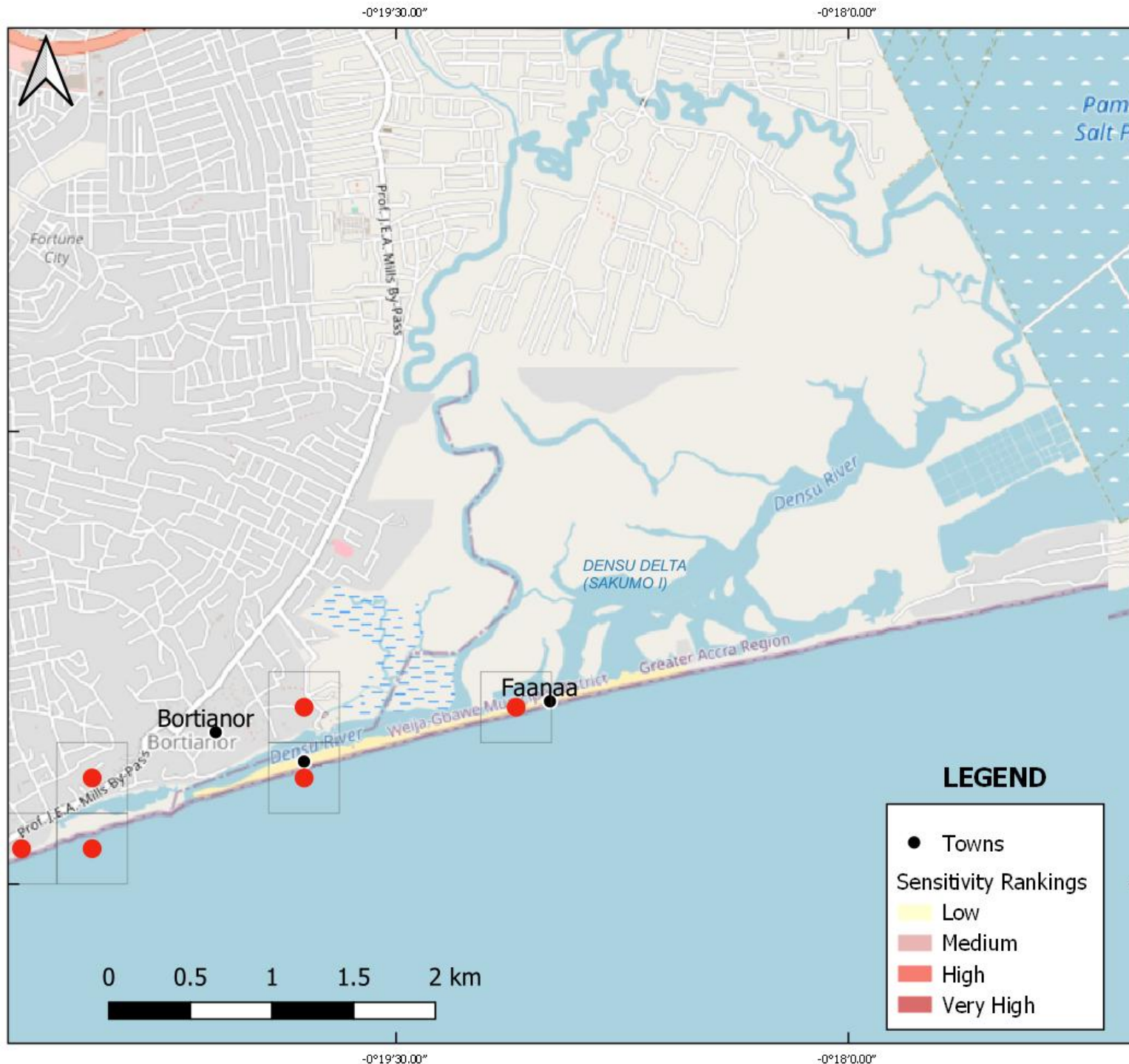
HUMAN ACTIVITY

Coastal Fishery: Bortianor has two landing beaches located at Tsokome and Bortianor. The fishing methods used are mainly purse seining and line nets. Faanaa has three landing beaches located at Shiayen Naa, Wiedzoshishie and Faadziemohe. The main fishing method is beach seining.

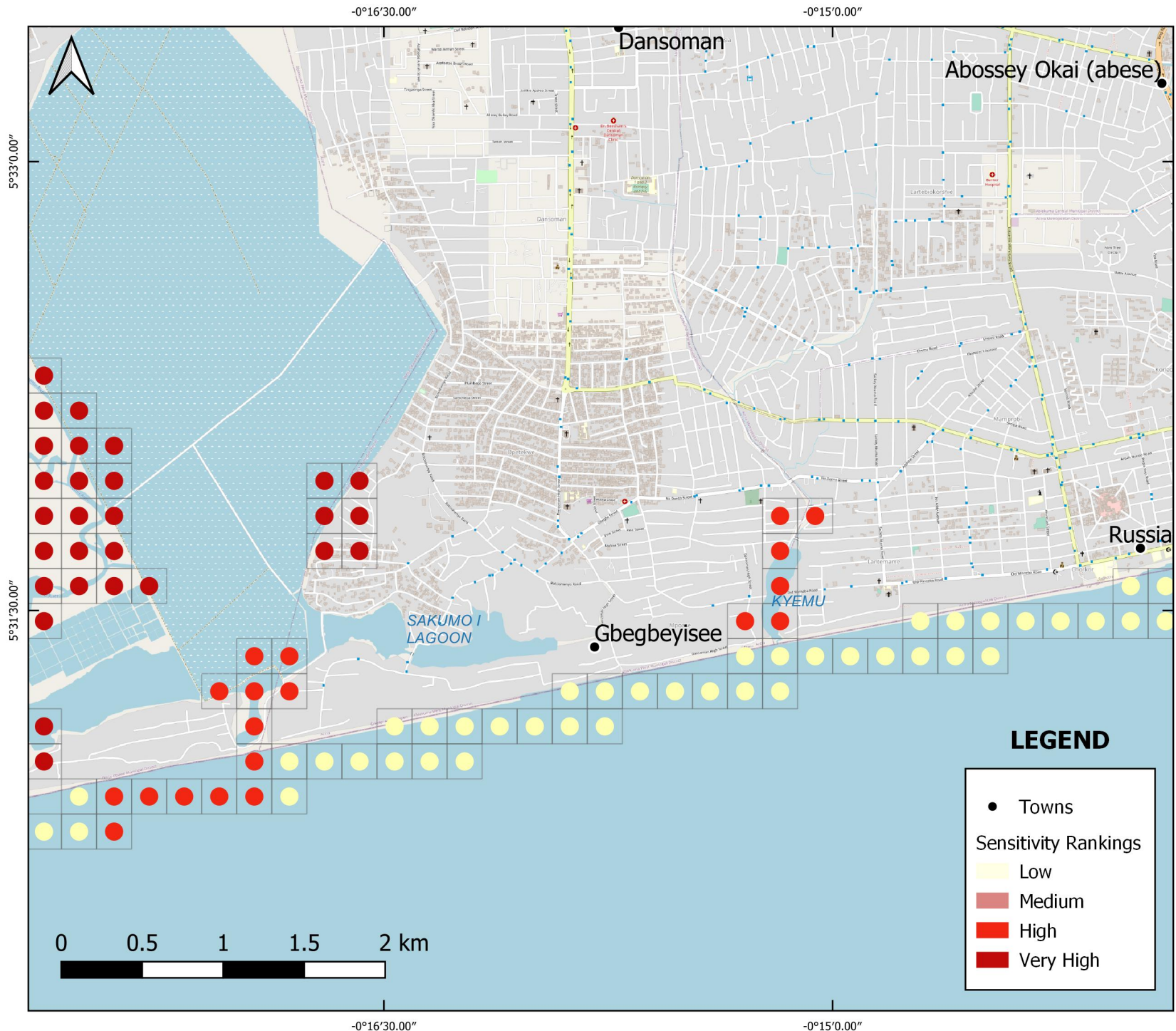
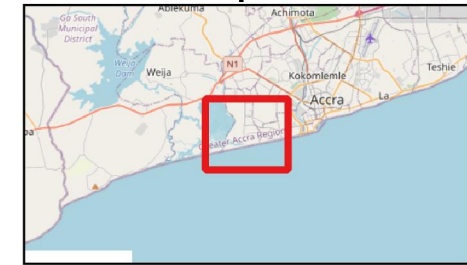
Lagoon Fishery: There are lagoon fisheries mainly for cichlids and lagoon crab

Industrial/Domestic utilization: There are salt pans in the Densu Delta area. Locals gather fuel wood in the area.

Recreation/tourism: Bortianor has a popular recreational beach.



Ecological Sensitivity Atlas Map 63



5°33'0.00"
5°31'30.00"

PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope. Sakumo I Lagoon (Densu Floodplain) is situated in the area. The Sakumo Lagoon is semi closed. It is closed most of the year except when water is released from the Weija reservoir. The Kyemu Lagoon is closed without any connection to the sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Sakumo I Lagoon (Densu Flood Plain)
The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Protection: Sakumo I (Densu Flood Plain) was designated Ramsar site in 1992 (Ramsar site no 564).

Vegetation: The major mangrove species are the black mangrove *Avicennia germinans* and the button mangrove *Conocarpus erectus*.

Birds: The Densu Flood Plain is particularly important for terns, being the second most important tern site (after Songor) on the Ghana coast. The importance of the Densu flood plain site is further enhanced by its population of Roseate terns, a threatened species. In 2004, the peak count of 200 Roseate terns at this site accounted for approximately 20% of the European breeding population of the rare species. Other water birds, which occur in significant numbers on the site, include waders and herons. The site supports internationally important populations of four species of waders: Curlew sandpiper, Little stint, Spotted redshank and Black-winged stilt. Fifteen other species of water birds occur in nationally important numbers. Seashore birds are most abundant from August to March.

Fish and crustaceans: The lagoon is a nursery site for fish and crustaceans. Fish species include cichlids *Sarotherodon melanotheron* and *Tilapia zillii*, catfish *Clarias sp.*, Bonga *Ethmalosa fimbriata*, Grey mullets *Mugil curema*, *Mugil sp.* and *Liza falcipinnis*. Mudskippers *Periophthalmus sp.* Crustaceans include Swimming blue-legged crab *Callinectes latimanus*, Fiddler crab *Uca tangerii*, prawns *Macrobrachium sp.*, *Parapenaeopsis atlantica* and *Penaeus notialis*.

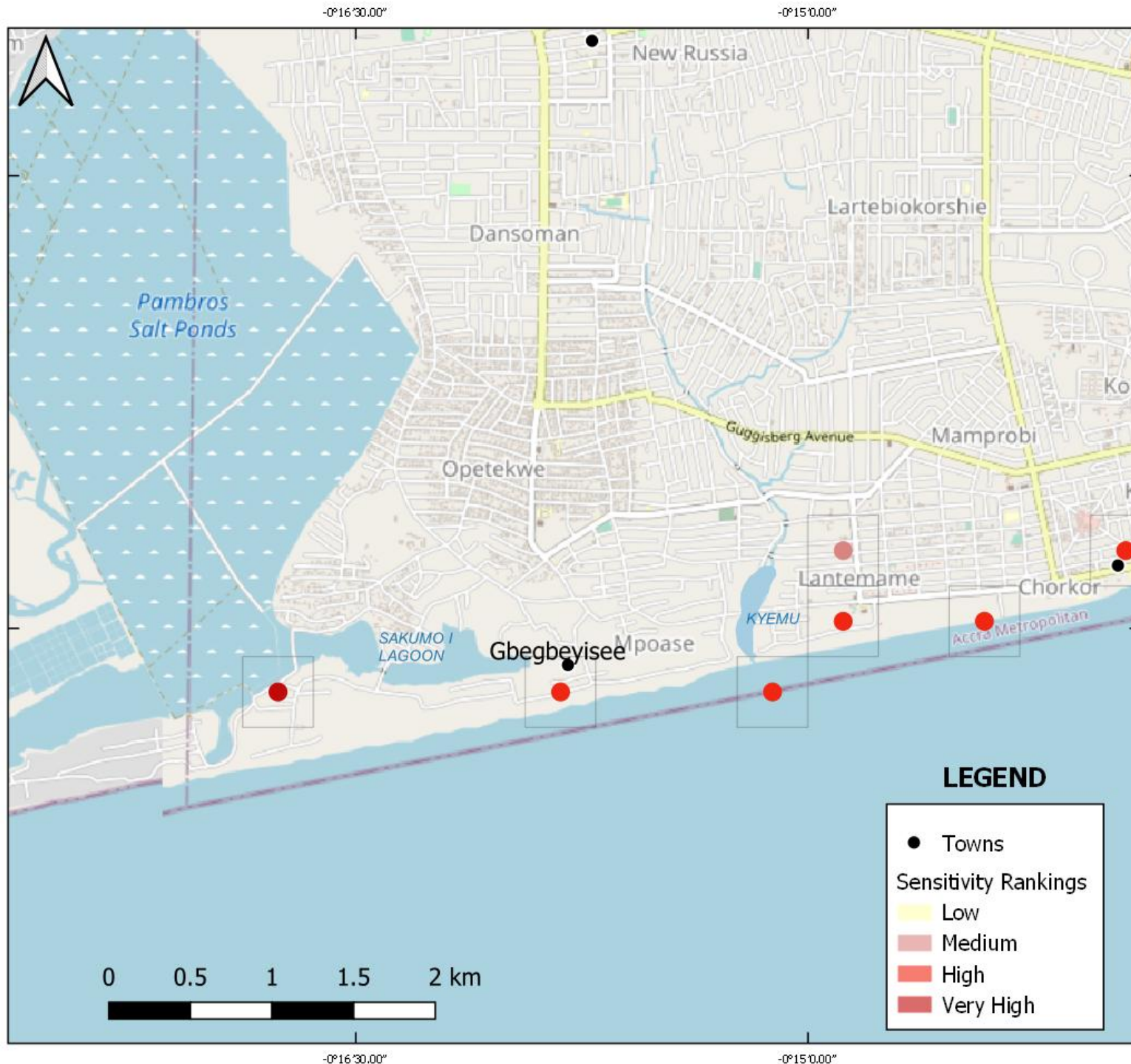
Other fauna: Other fauna in the lagoon include oysters *Crassostrea tulipa*, gastropods *Tympanotomus fuscatus*, *Turritella meta* and *Tivela tripla* and barnacles *Balanis sp.*

Turtle nesting: There are turtle nesting sites in the area.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High

**Socio-economic Sensitivity Atlas
Map 63**



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope. Sakumo I Lagoon (Densu Floodplain) is situated in the area. The Sakumo Lagoon is semi closed. It is closed most of the year except when water is released from the Weija reservoir. The Kyemu Lagoon is closed without any connection to the sea.

HUMAN ACTIVITY

Coastal Fishery: Glefee has one landing beach where the main fishing method is beach seining. Gbegbe has one landing beach practicing mainly purse seining. Gbegbeyisee has one landing beach. The fishing methods used are predominantly all nets, purse seining and beach seining. Chorkor has four landing beaches located at Wolei Amli, Manturu, Lanterman and Kyemu Naa. The dominant fishing methods are purse seining and all netting.

Lagoon Fishery: There are lagoon fisheries mainly for cichlids and lagoon crabs.

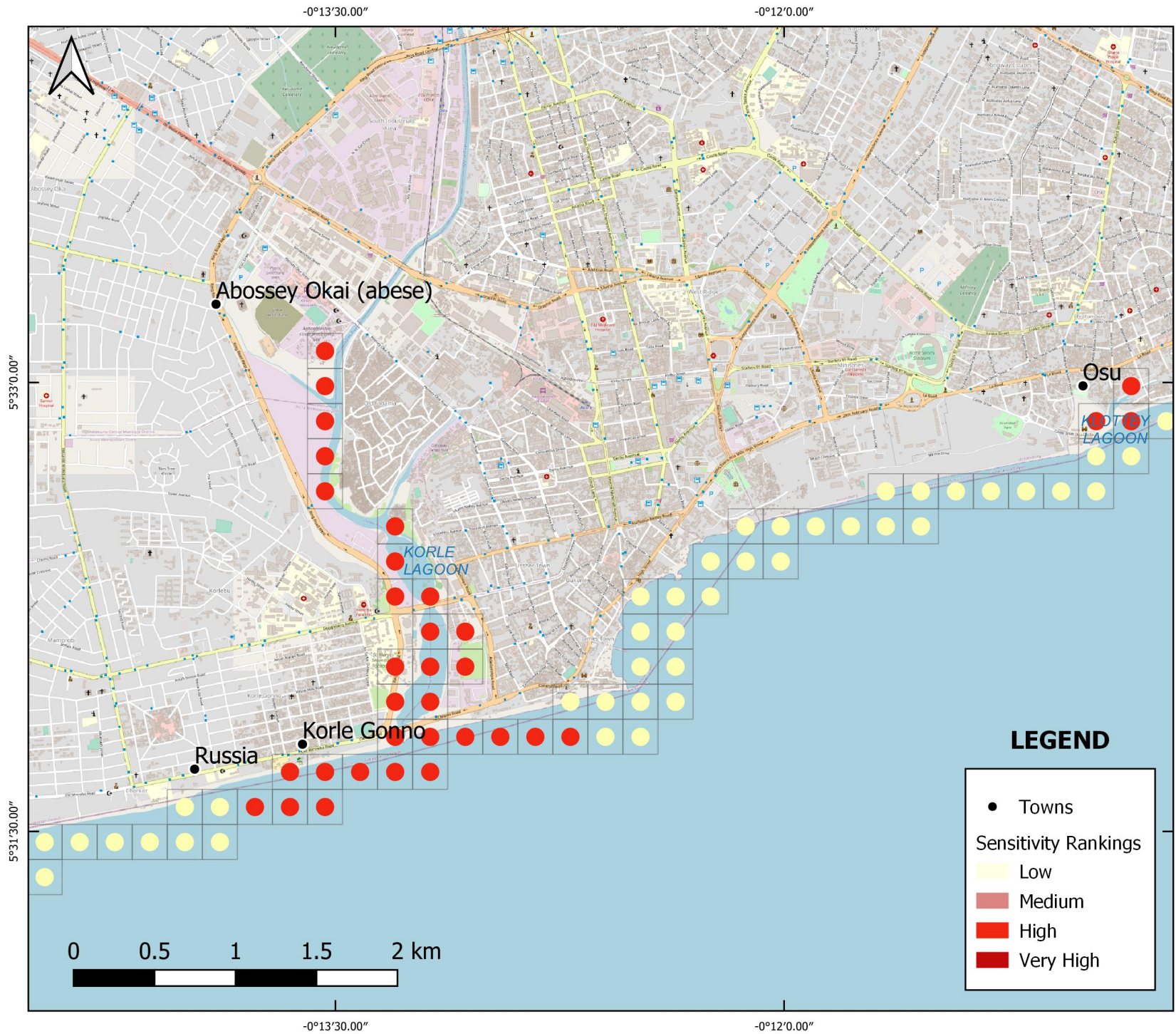
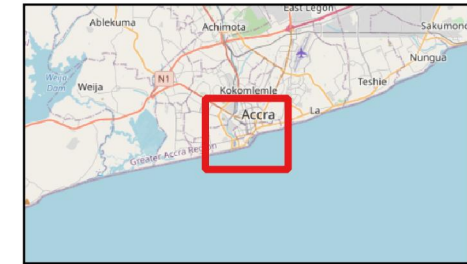
Industrial/Domestic utilization: Water is abstracted from the sea for large-scale salt production in the Densu Flood Plain. Local people gather fuel wood in the area.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Ecological Sensitivity Atlas Map 64



PHYSICAL ENVIRONMENT

The beach is coarse grained sand in the eastern part and fine grained sand in the western part of the area. There are also steep rocks in the area. There is a lagoon in the area, Korle Lagoon which is permanently connected to the sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Korle Lagoon

The lagoon is an important and vulnerable ecosystem, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Vegetation: There are mangroves (*Avicennia germinans*) in Korle lagoon.

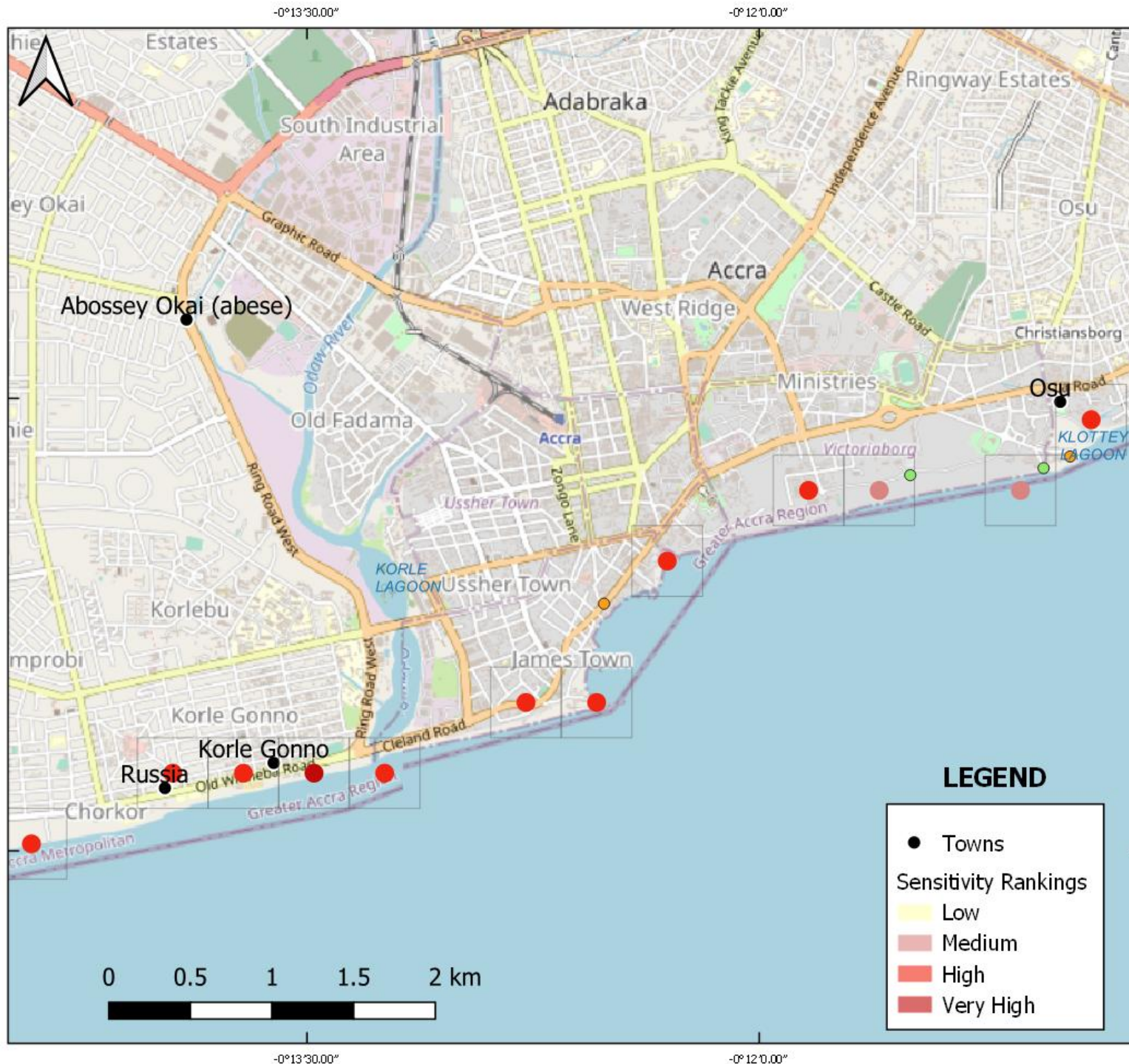
Birds: Korle Lagoon is an important feeding and roosting site for migrant waterfowl with 12,000 being the maximum number of recorded birds. Species include Little egret, Wood sandpiper, Common sandpiper, Sanderling and Little stint.

Pollution: Korle Lagoon is heavily polluted. It receives effluents from industries and domestic wastewater from Accra municipality.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High

Socio-economic Sensitivity Atlas Map 64



PHYSICAL ENVIRONMENT

The beach is coarse grained sand in the eastern part and fine grained sand in the western part of the area. There are also steep rocks in the area. There is a lagoon in the area, Korle Lagoon which is permanently connected to the sea.

HUMAN ACTIVITY

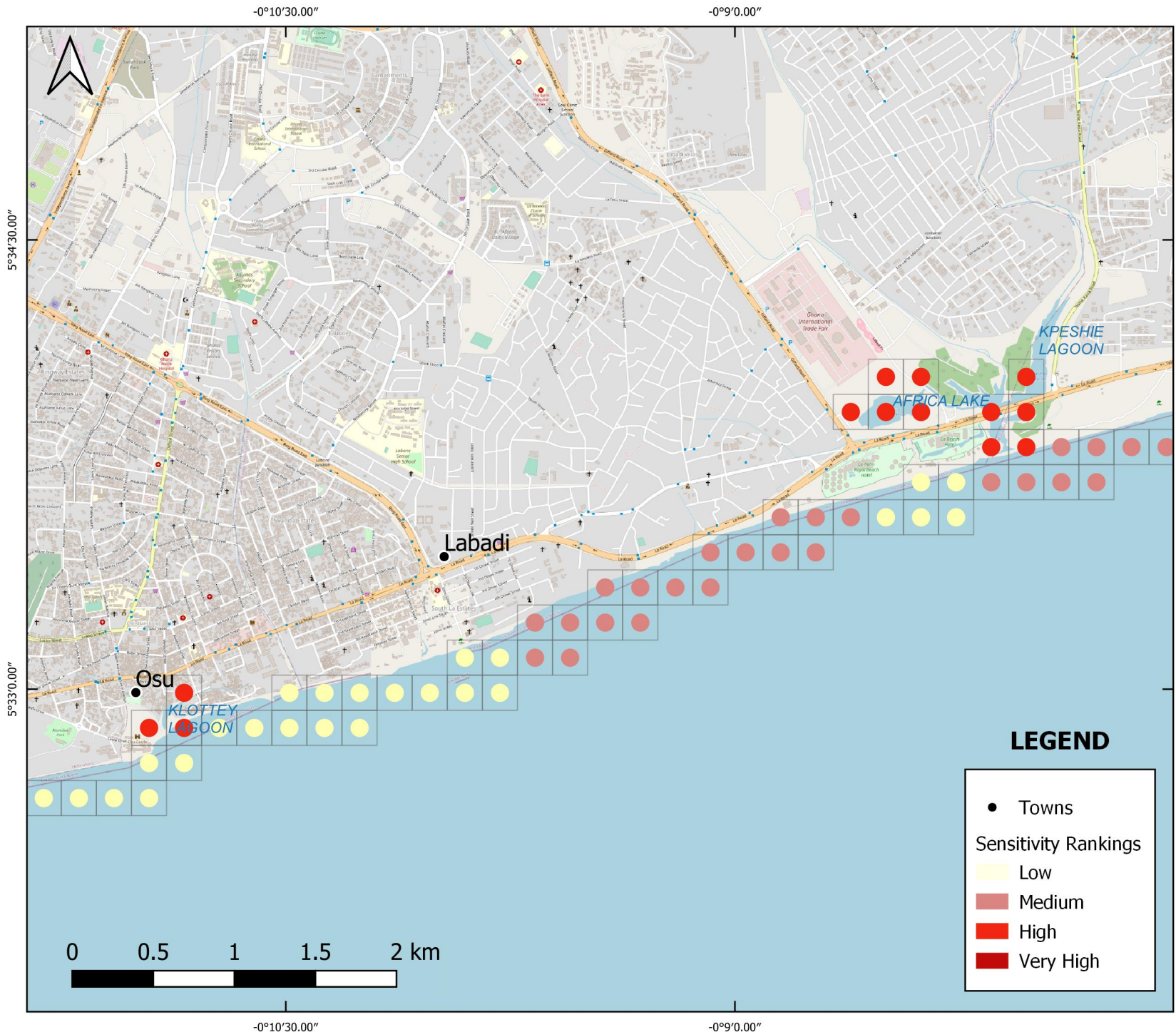
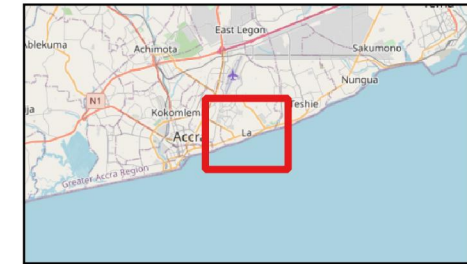
Coastal Fishery: Accra has three landing beaches located at Ga Mashie, Korley Naa and Mensah Guinea. The dominant fishing methods practiced are purse seining (mainly Ga Mashie), beach seining, line fishing (mainly Ga Mashie) and all nets.

Recreation/tourism: There is a recreational beach at Chorkor and hotels at the water front in Accra.

Other: There are two historical buildings in the area, the Usher and James forts. Usher fort was built by the Dutch in 1652 and James fort by the British in 1673.



Ecological Sensitivity Atlas Map 65



PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with a moderate slope. There is an area with exposed rocks with low to moderate slope at Labadi. There is also a lagoon in the area, i.e. the semi closed Kpeshie Lagoon, which is seasonally open to the sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity. The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyoptera delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

Kpeshie Lagoon

The lagoon is an important and vulnerable ecosystem, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

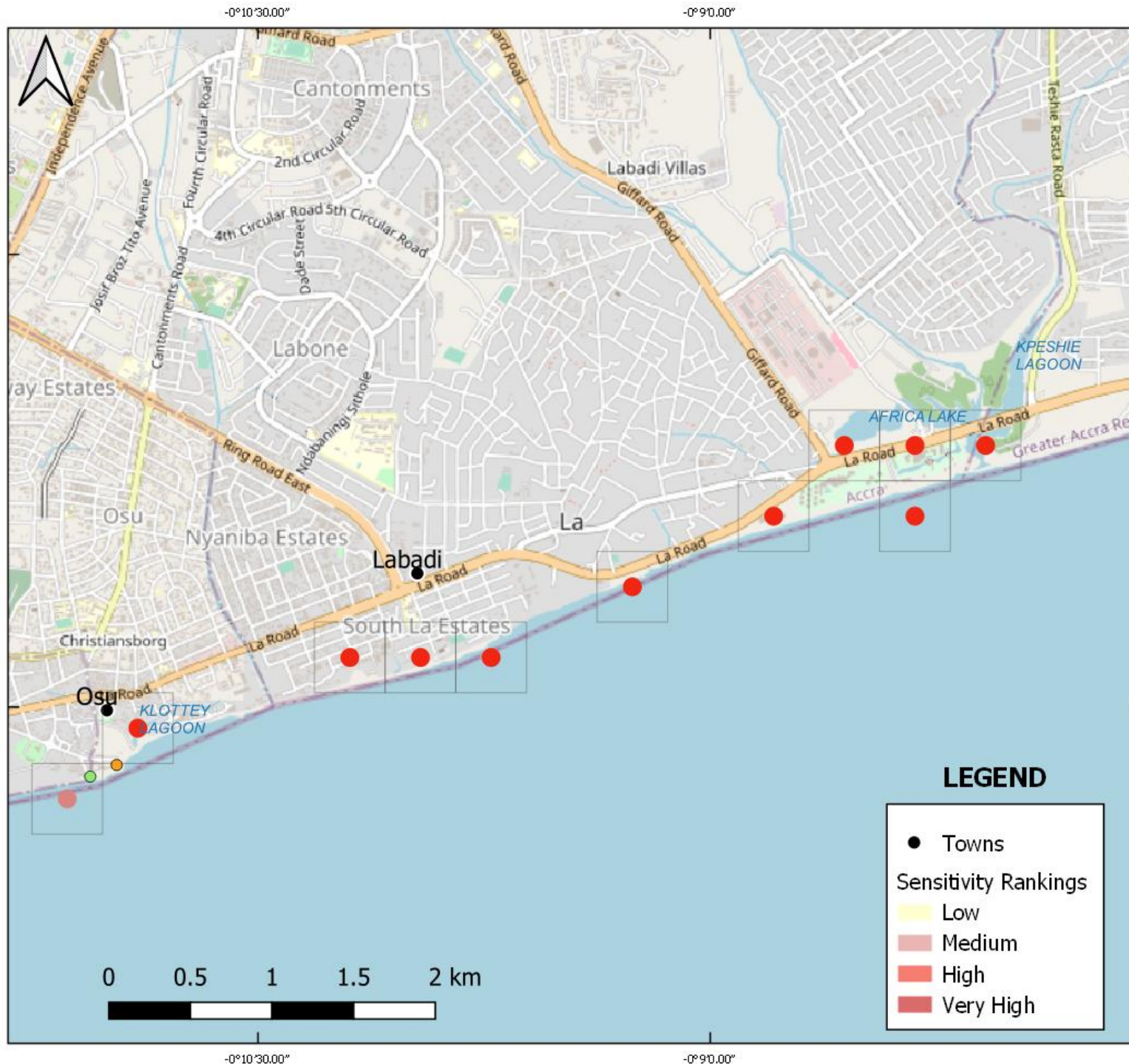
Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priophthalmus kaelruti*, freshwater species such as *Oreochromis niloticus* and *Tilapia zillii*, and when the lagoon is open marine species like *Albula vulpes* and *Lutjanus fulgens*.

When the lagoon is open, it is a nursery area for marine species that spawn at sea, but have their juvenile forms washed into the lagoon including the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High

Socio-economic Sensitivity Atlas Map 65



PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with a moderate slope. There is an area with exposed rocks with low to moderate slope at Labadi. There is also a lagoon in the area, i.e. the semi closed Kpeshie Lagoon, which is seasonally open to the sea.

HUMAN ACTIVITY

Coastal Fishery: Osu has one landing beach at Alata, where the main fishing practices is line fishing.

La has two landing beaches located at Pleasure beach and Abese. The main fishing methods are purse seining and beach seining.

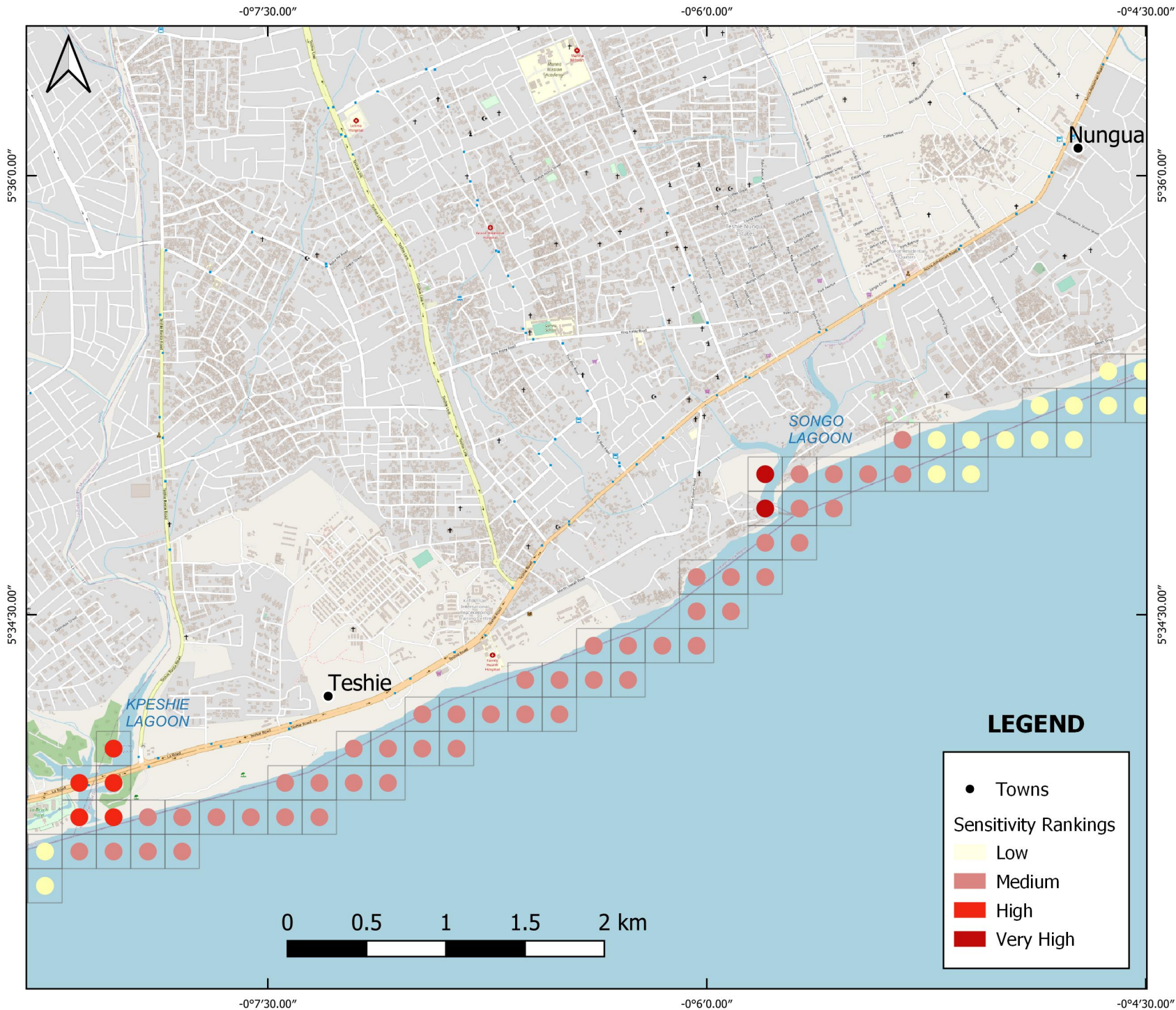
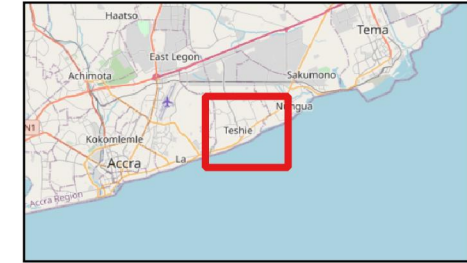
Other: There is a castle in the area the Christiansburg, which was built by the Danes in 1661. The Castle has been the seat of the Government from 1876 to the present day. There are hotels at the waterfront at La.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Ecological Sensitivity Atlas Map 66



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope and exposed rocks with a low to moderate slope. There is also a lagoon in the area, the semi - closed Sango (Songo) Lagoon, which is seasonally open to the sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity. The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopters delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothammia sp.*

Songo Lagoon

The lagoon is an important and vulnerable ecosystem, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priophthalmus kaeruti*, freshwater species such as the cichlids *Oreochromis niloticus* and *Tilapia zillii*, marine species such as *Albula vulpes* and *Lutjanus fulgens*.

When the lagoon is open it is nursery ground for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

LEGEND

● Towns

Sensitivity Rankings

● Low

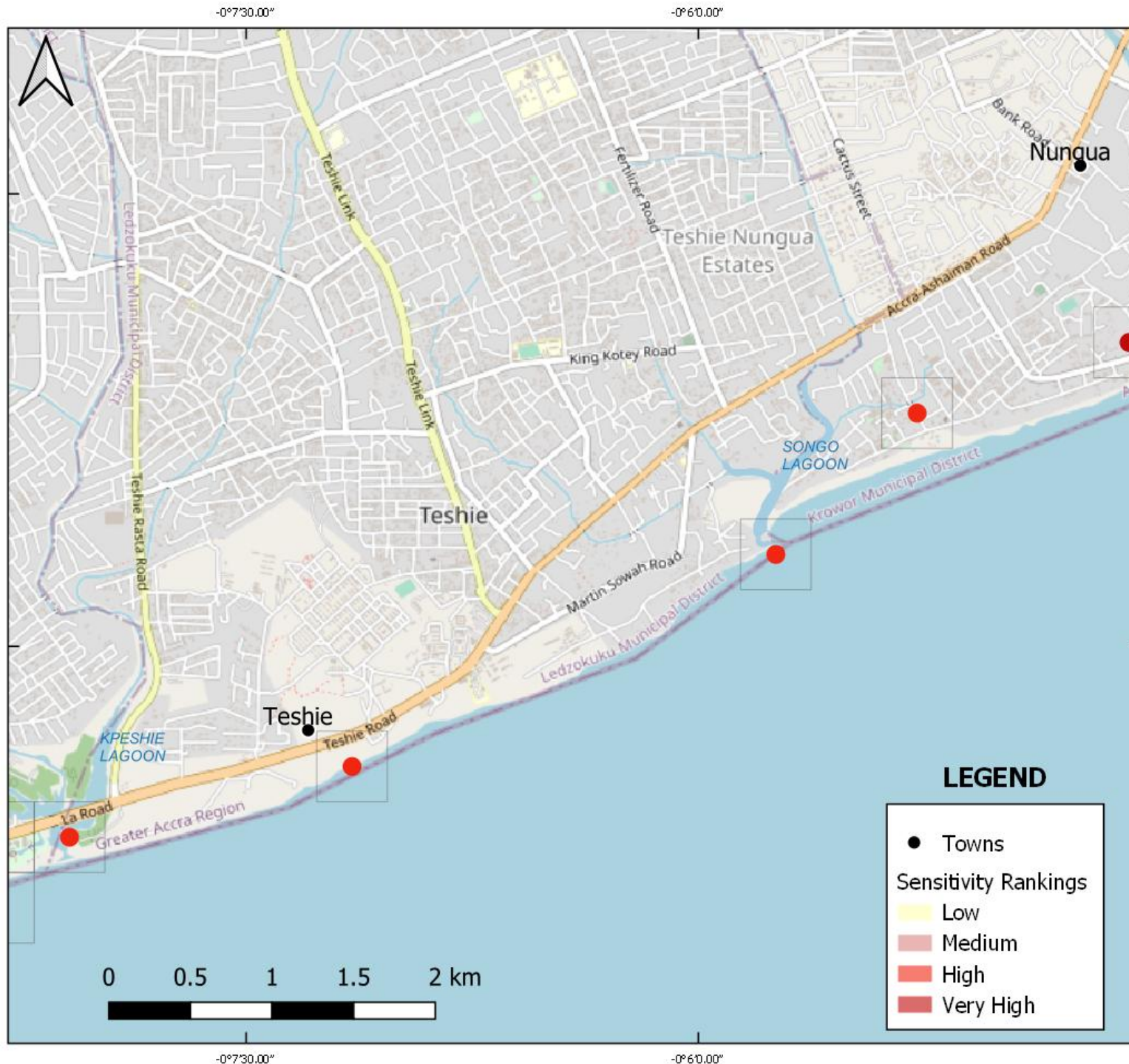
● Medium

● High

● Very High



**Socio-economic Sensitivity Atlas
Map 66**



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope and exposed rocks with a low to moderate slope. There is also a lagoon in the area, the semi-closed Songo (Songo) Lagoon, which is seasonally open to the sea.

HUMAN ACTIVITY

Coastal Fishery: Teshie has one landing beach at Sangonaa where the main gears used are purse seining and all nets. Beach seining is also used.

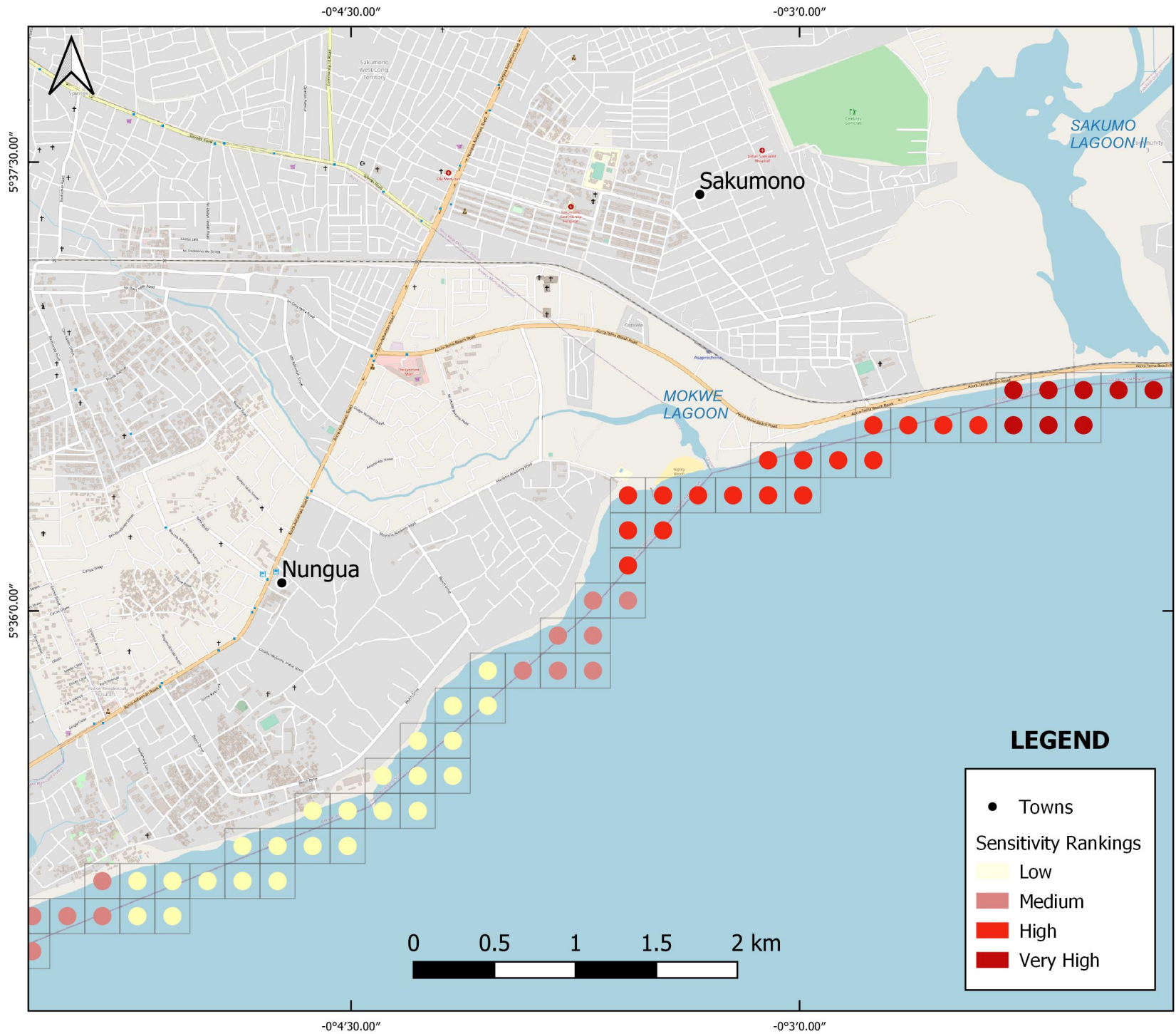
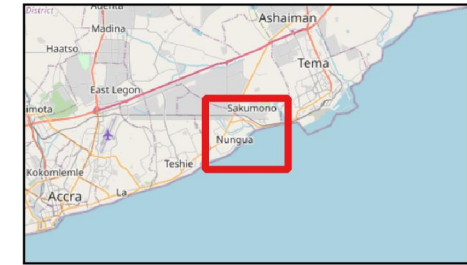
Recreation/tourism: There is a hotel at the waterfront in Teshie. Industrial/Domestic utilization: There is a desalination plant located here.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Ecological Sensitivity Atlas Map 67



PHYSICAL ENVIRONMENT

The coastline is coarse sand with moderate slope and areas with exposed rocks with low to moderate slope. There is a closed lagoon in the area, the Mokwe lagoon. This lagoon will not be affected by an oil spill at sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity. The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyoptera delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

Intertidal rocks covered by abundant algal growth, which are exposed at low tide, are encountered in the rocky area between Nungua and Sakumono. This habitat is very important as a nursery area for fish.

Turtle nesting: There are turtle nesting sites in the eastern part of the area.

LEGEND

● Towns

Sensitivity Rankings

● Low

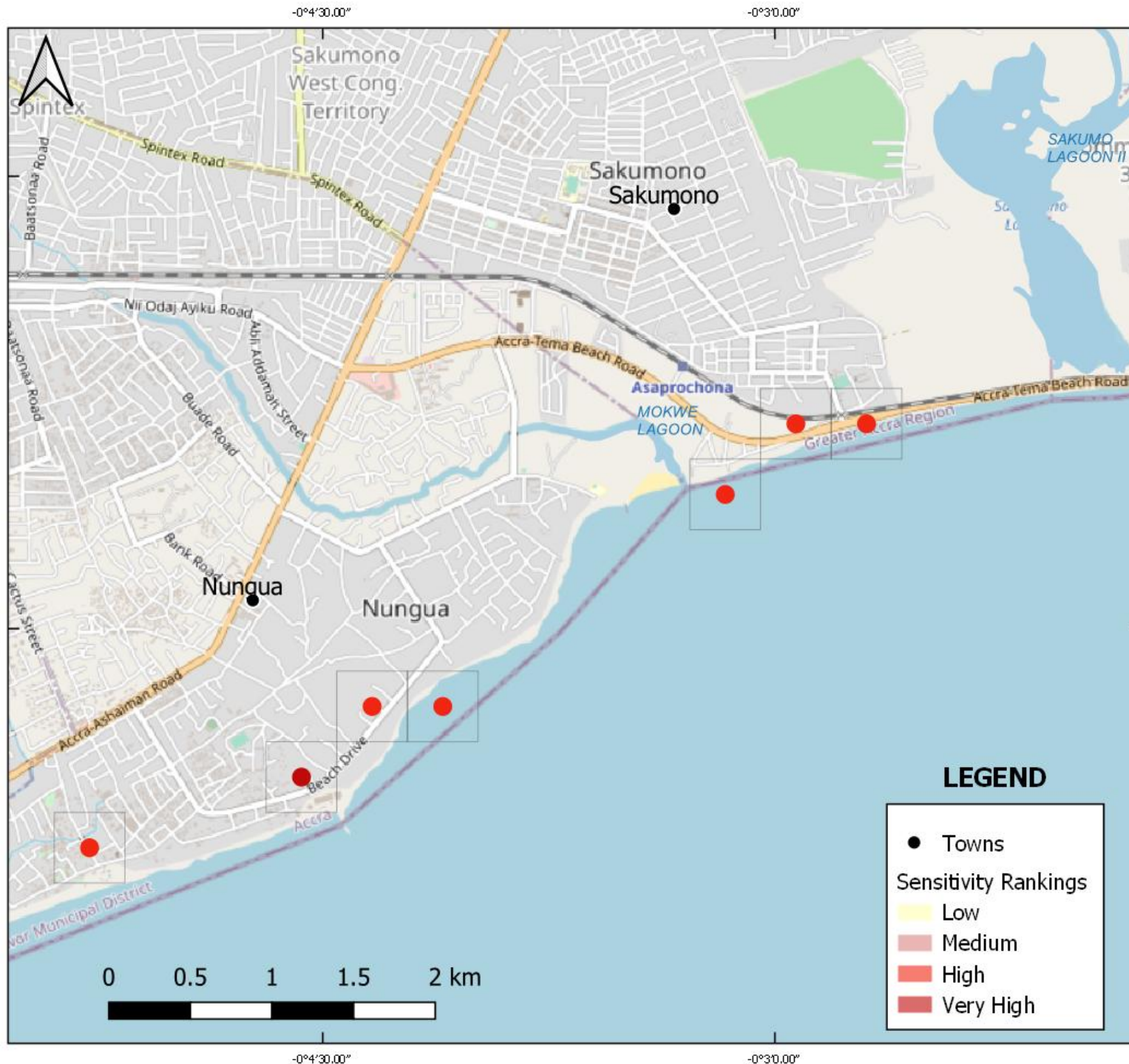
● Medium

● High

● Very High



Socio-economic Sensitivity Atlas Map 67



PHYSICAL ENVIRONMENT

The coastline is coarse sand with moderate slope and areas with exposed rocks with low to moderate slope. There is a closed lagoon in the area, the Mokwe lagoon. This lagoon will not be affected by an oil spill at sea.

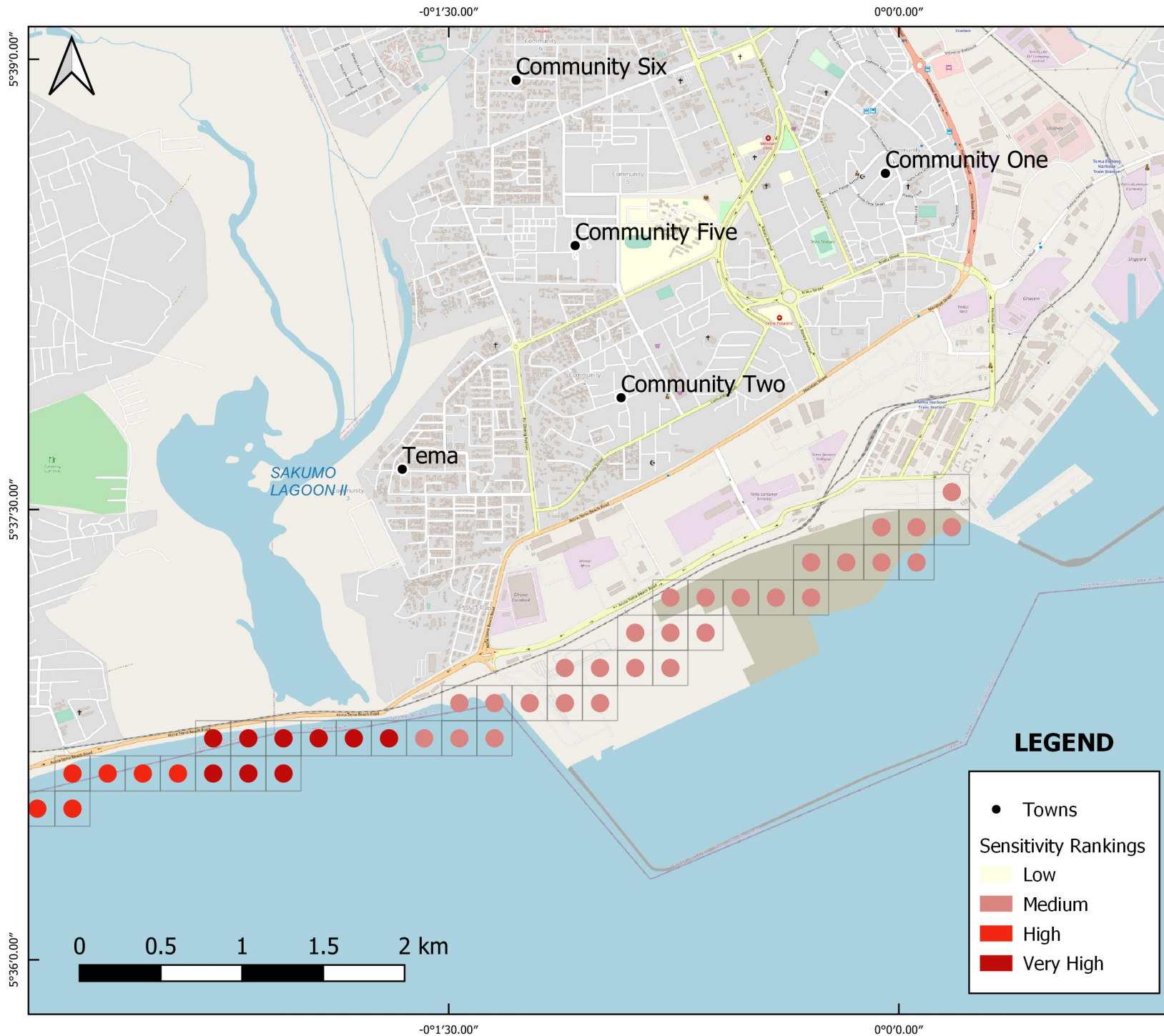
HUMAN ACTIVITY

Coastal Fishery: Nungua has a landing beach at Tsenaa. The fishermen use various set nets but the dominant fishing methods are all nets and pursing nets.

Recreation/tourism: There are hotels at the water front at Nungua.



Ecological Sensitivity Atlas Map 68



PHYSICAL ENVIRONMENT

The beach is coarse grained sand with moderate slope. Sakumo II lagoon is situated in the area. Originally the lagoon was closed but to protect the important trunk road linking Accra and Tema from the hazards of overflowing, the lagoon is kept open by culverts.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity. Intertidal rocks covered by abundant algal growth, which are exposed at low tide, are encountered at Sakumono. This habitat is very important as nursery area for fish.

Sakumo II Lagoon

The lagoon is an important and vulnerable ecosystem, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Protection: Sakumo II was designated a Ramsar site in 1992 (Ramsar site no 565).

Vegetation: The open lagoon water surface is often dominated by periodic luxuriant growth and cover of water lettuce *Pistia stratiodes*. In the northern less saline area the *Pistia stratiodes* is intermingled with *Ludwigia stolonifera* and *Alternanthera sessilis*.

Birds: The lagoon and its wetlands support many species of seashore birds with estimated population of 32,500 as at 2004, making the site the third most important seashore bird site on the Ghanaian coast. Over 80% are paleoartic migrants. The site supports internationally important populations of six wader species: Spotted redshank, Greenshank, Curlew sandpiper, Little stint, Black-tailed godwit and Black winged-stilt, and nationally important populations of at least 30 species of waterfowl. At some times of the year, Sakumo supports 90-100% of the total population of Black heron, Teal, Black-tailed godwit and Ruff recorded on the Ghana coast. Birds are most abundant during September to March/April.

Fish and crustaceans: The lagoon is a nursery site for fish and crustaceans. Though the cichlid *Sarotherodon melanotheron* make up over 90% of fish catches in the lagoon, species such as *Ethmalosa fimbriata*, *Elops senegalensis* and to a lesser extent *Caranx hippos* and *Oreochromis niloticus* occur. Crustaceans include the blue-legged lagoon swimming crab *Callinectes latimanus*.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Socio-economic Sensitivity Atlas Map 68



PHYSICAL ENVIRONMENT

The beach is coarse grained sand with moderate slope. Sakumo II lagoon is situated in the area. Originally the lagoon was closed but to protect the important trunk road linking Accra and Tema from the hazards of overflowing, the lagoon is kept open by culverts.

HUMAN ACTIVITY

Coastal Fishery: Sakumono and Mukwena are the two landing beaches of Sakumono and employ set nets for fishing. Tema has two landing beaches namely Ashaiman and Awudun practicing mainly line fishing and occasionally using all nets.

Lagoon Fishery: The lagoon supports subsistence fisheries.

Industrial/Domestic utilization: Tema harbour is the biggest harbour in Ghana. In case of fire, the water in the harbour is used for firefighting. There are salt ponds at Sakumo Lagoon.

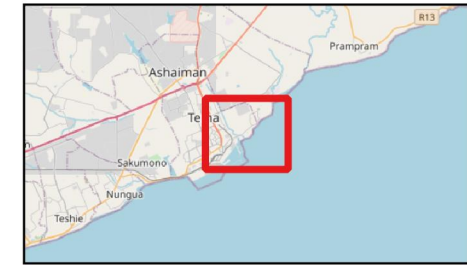
Recreation/tourism: There is a recreational beach in the area.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Ecological Sensitivity Atlas Map 69



0°0'0.00"

0°1'30.00"

0°3'0.00"

5°39'0.00"

5°39'0.00"

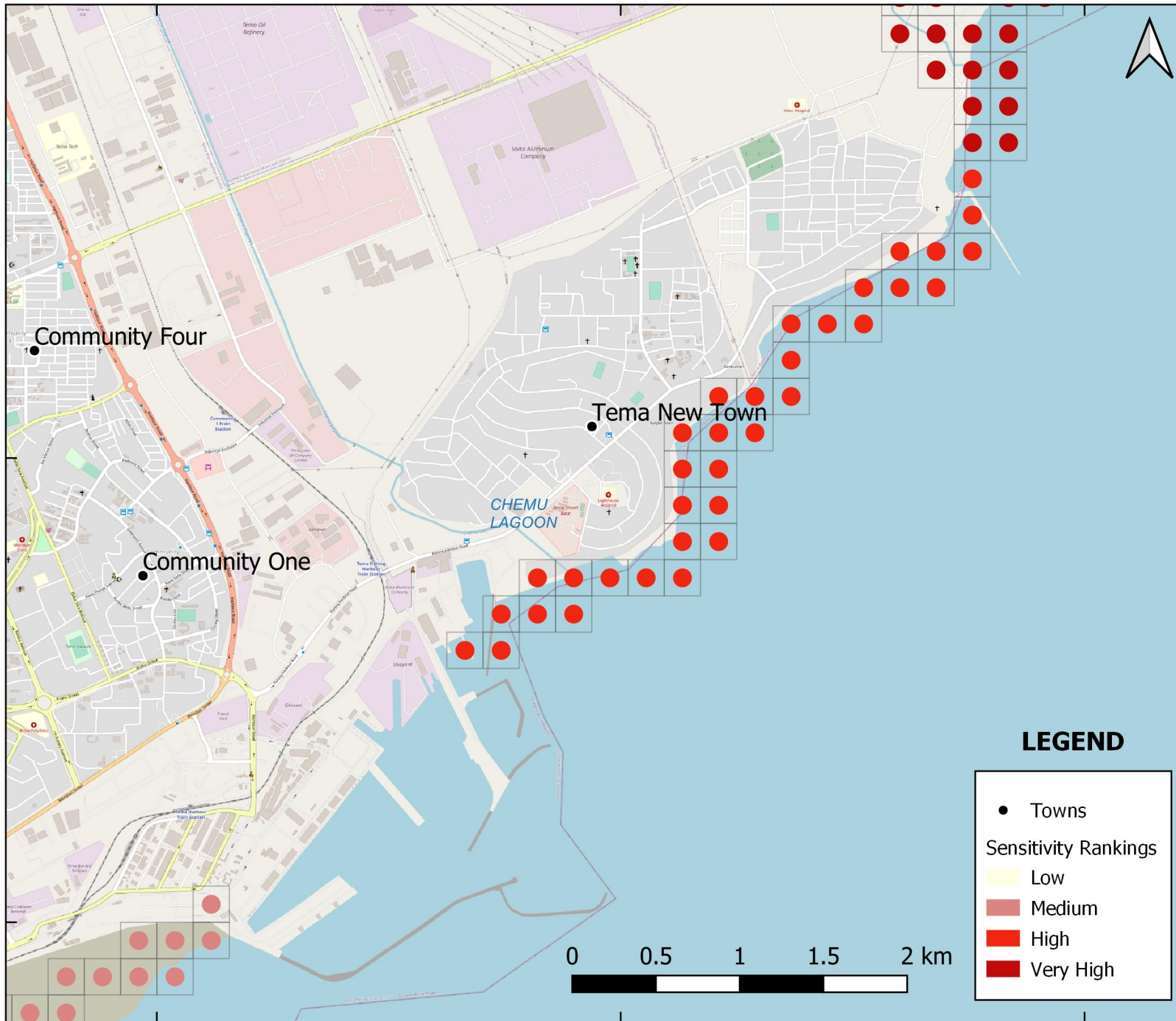
5°37'30.00"

5°37'30.00"

0°0'0.00"

0°1'30.00"

0°3'0.00"



PHYSICAL ENVIRONMENT

The beach facing the sea is coarse sand with moderate slope and protruding rocky flats with abundant crevices (tidal pools). There is a small open lagoon in the area, the Chemu Lagoon.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopteris delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnia sp.*

On rocky flats with abundant crevices there are tide pools where pools of water collect in hollows and depressions of the rocks at low tide. The tide pools house a rich vegetation of algae and a diverse fauna of crabs, sea urchins and fish.

Intertidal rocks covered by abundant algal growth, which are exposed at low tide, are encountered along the coast from the mouth of the Chemu lagoon towards the north-east. This habitat is very important as a nursery area for fish.

Chemu Lagoon

Chemu Lagoon is heavily polluted by factory effluents discharged from Tema, which is the most industrialised city in Ghana.

LEGEND

● Towns

Sensitivity Rankings

Low

Medium

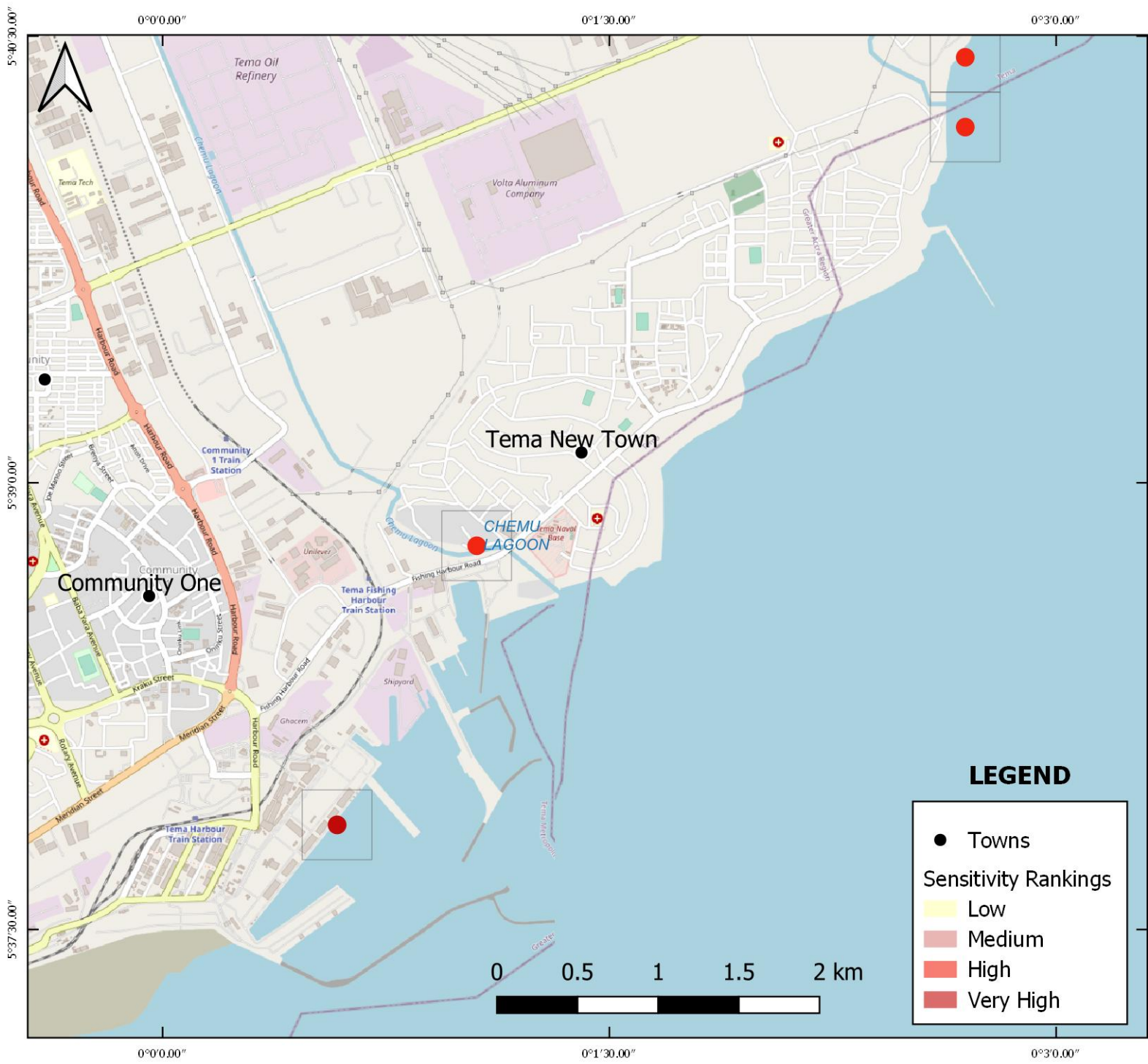
High

Very High

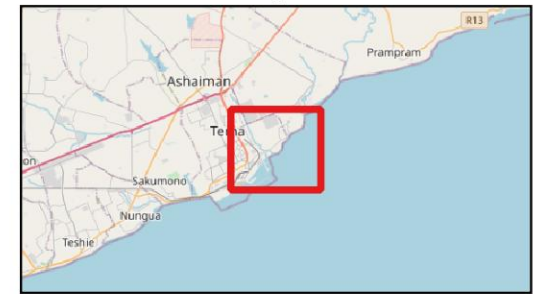
0 0.5 1 1.5 2 km



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development Programme (OFD). All Rights Reserved.



Socio-economic Sensitivity Atlas Map 69



PHYSICAL ENVIRONMENT

The beach facing the sea is coarse sand with moderate slope and protruding rocky flats with abundant crevices (tidal pools). There is a small open lagoon in the area, the Chemu Lagoon.

HUMAN ACTIVITY

Coastal Fishery: Tema has two landing beaches namely Ashaiman and Awudun practicing mainly line fishing and occasionally using ali nets.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development programme (OfD). All Rights Reserved.

Ecological Sensitivity Atlas Map 70



PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with a moderate slope. The southern part of the area has protruding rocky flats with abundant crevices (tide pools). The open Gao lagoon discharges into the sea in the area. The larger Lalo lagoon is a semi closed type, which is seasonally opened to the sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity. The rocks are substrate for a wide variety of species of macroalgae and barnacles and are important habitats for snails, limpets, crustacean and fish. Species of macroalgae attached to the rocks include *Saragassum vulgare*, *Dictyopterus delicatula*, *Ulva fasciata*, *Chaetomorpha sp.* and *Lithothamnium sp.*

On rocky flats with abundant crevices there are tide pools where pools of water collect in hollows and depressions of the rocks at low tide. The tide pools house a rich vegetation of algae and a diverse fauna of crabs, sea urchins and fish. Intertidal rocks covered by abundant algal growth, which are exposed at low tide, are encountered south of the mouth of Gao lagoon and at Kpone. This habitat is very important as a nursery area for fish.

Gao and Lalo Lagoons
The lagoons are important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

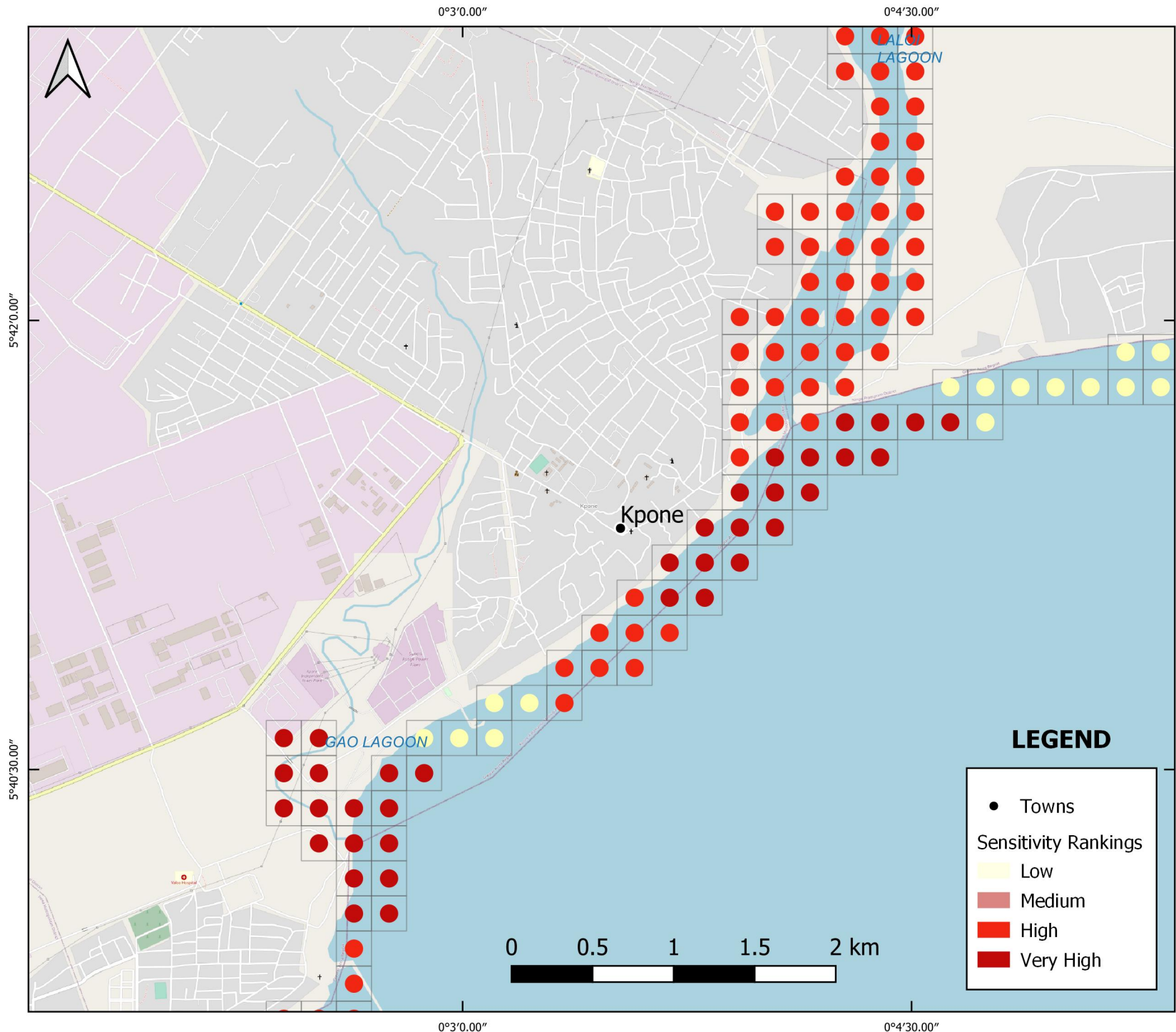
Vegetation: There are mangroves in the Gao lagoon

Birds: The Lalo Lagoon serves as a habitat for migratory birds. Till date, the maximum number of birds recorded for the lagoon is 5000. Common species include: Little egret, Reef heron, Black-winged stilt and common tern.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priopthalmus kaelruti*, freshwater species such as *Oreochromis niloticus* and *Tilapia zillii*, and marine species such as *Albula vulpes* and *Lutjanus fulgens*.

The lagoons are nursery areas for marine species that spawn at sea, but have their juvenile forms washed into the lagoons and used as nursery grounds, e.g. *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

Other species: Oysters and clams are found in the lagoon.



Socio-economic Sensitivity Atlas Map 70



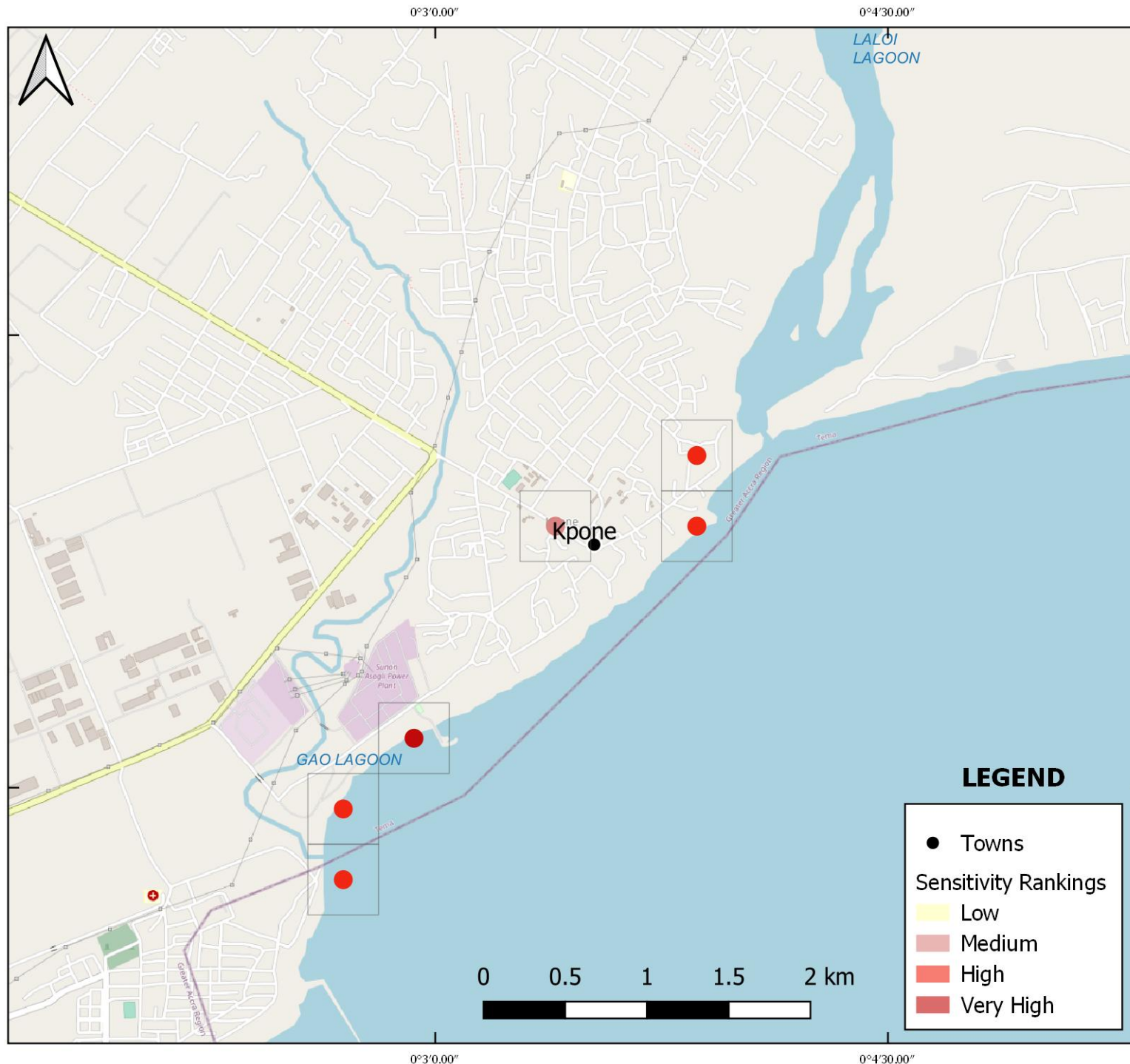
PHYSICAL ENVIRONMENT

The beach is predominantly coarse sand with a moderate slope. The southern part of the area has protruding rocky flats with abundant crevices (tide pools). The open Gao lagoon discharges into the sea in the area. The larger Lalo lagoon is a semi closed type, which is seasonally opened to the sea.

HUMAN ACTIVITY

Coastal Fishery: Kpone has three landing beaches situated at Lalo Naa, Odunyaonma and Sega. The fishermen practice purse seining and line fishing.

Industrial/Domestic utilization: There is an industrial water intake for the Sunan Asogli power plant. There are Salt Ponds in Lalo lagoon.



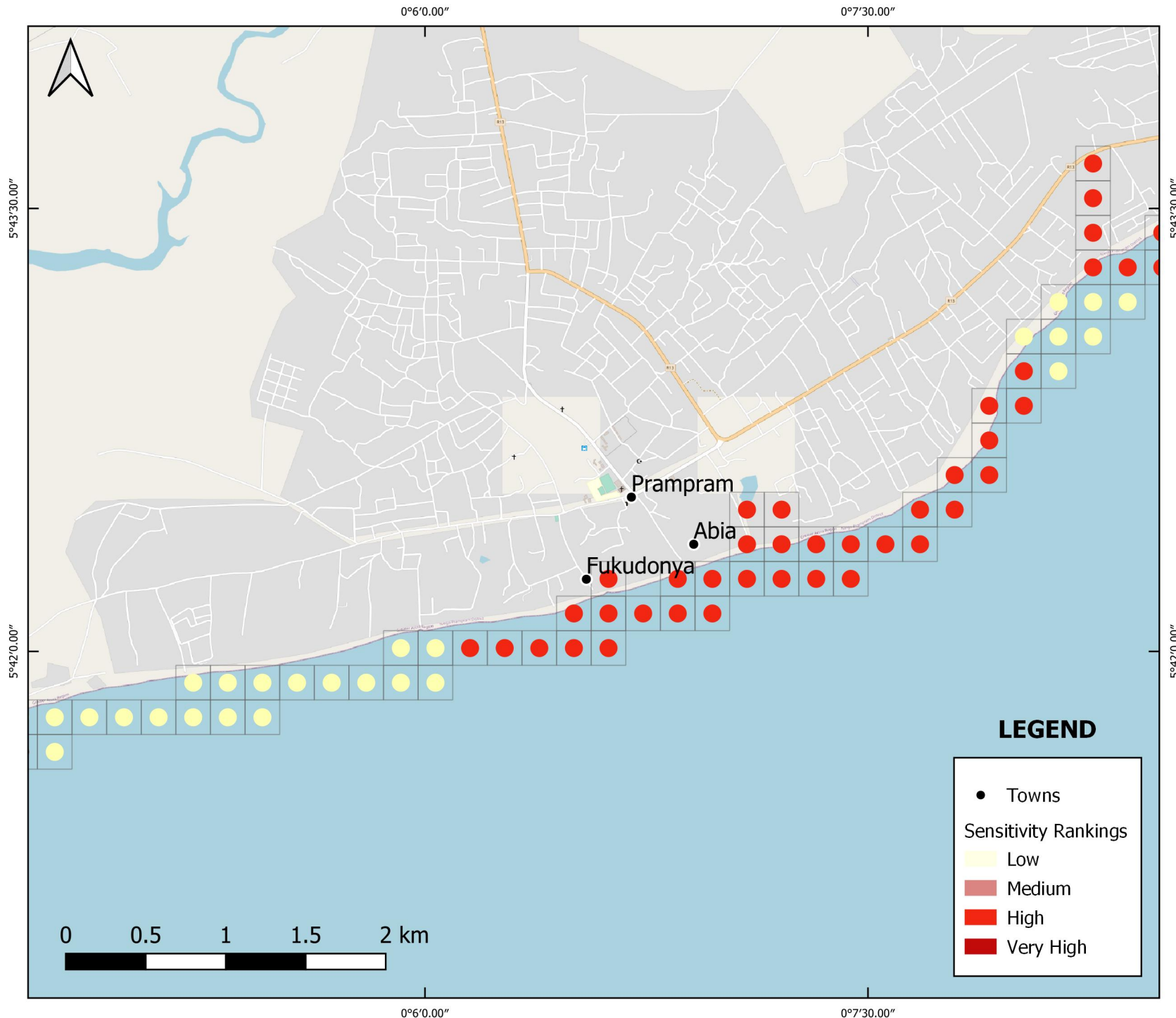
LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development programme (OfD). All Rights Reserved.

Ecological Sensitivity Atlas Map 71



PHYSICAL ENVIRONMENT

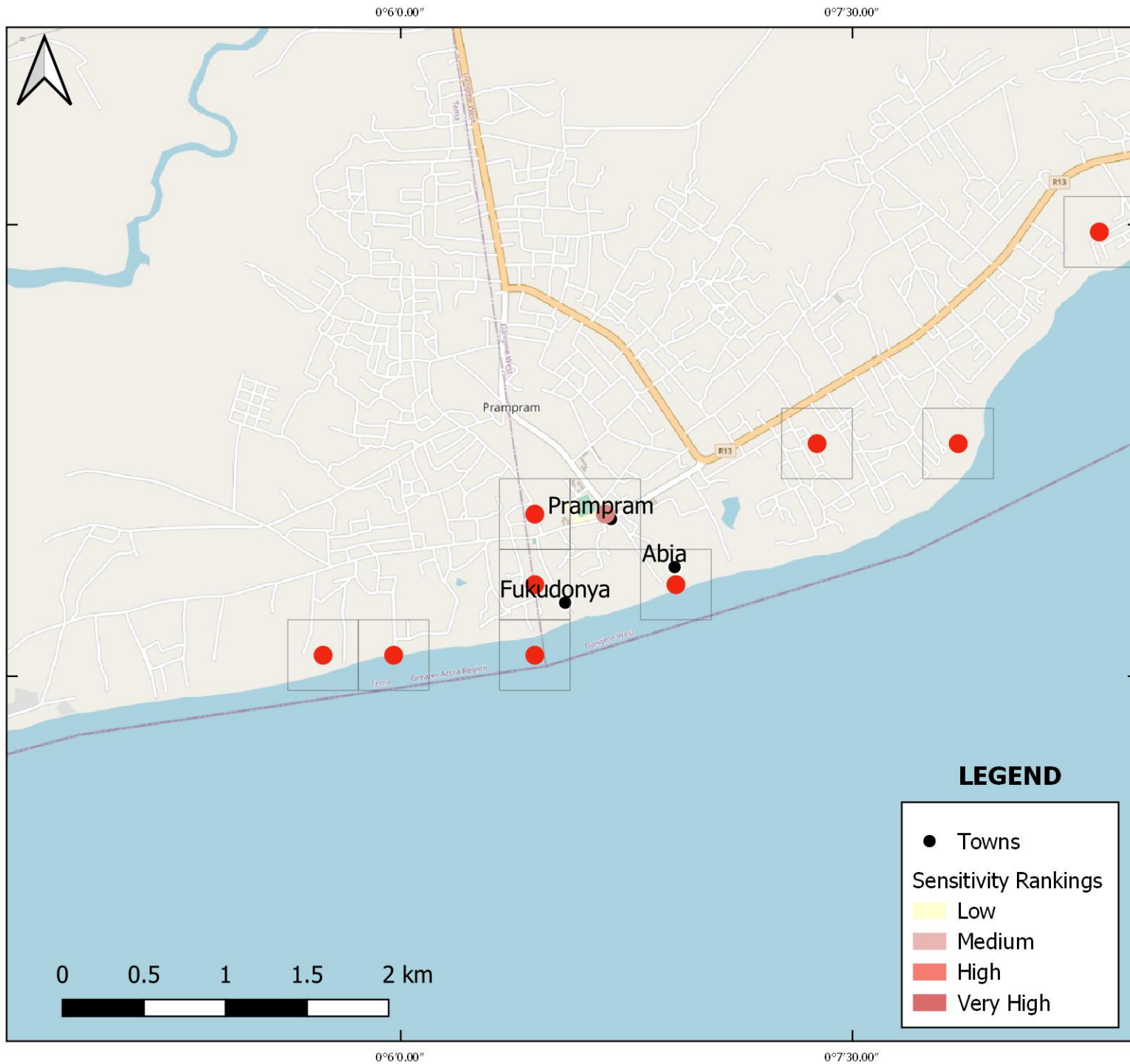
The beach is coarse sand with a moderate slope.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity. Intertidal rocks covered by abundant algal growth, which are exposed at low tide, are encountered from Prampram to Abia/Akokrom. This habitat is very important as a nursery area for fish.

Turtle nesting sites: The beaches in the whole area are important nesting sites for marine turtles. The area is part of the main turtle nesting site in Ghana, extending from Prampram to Volta estuary.

Socio-economic Sensitivity Atlas Map 71



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope.

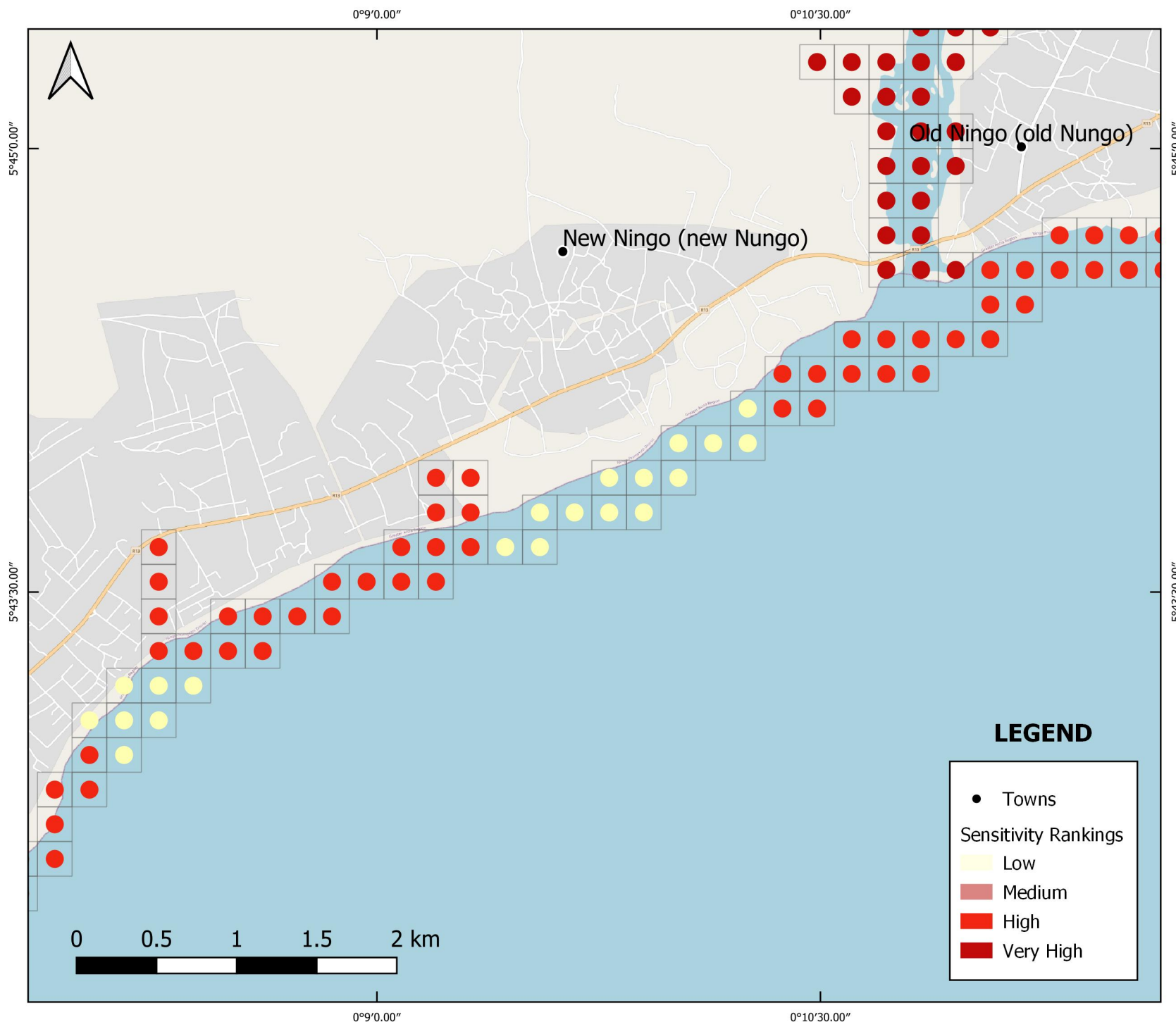
HUMAN ACTIVITY

Coastal Fishery: Prampram has two landing beaches situated at Fukudonya and at Lighthouse. The fishing methods used here are mainly purse seining with lines; lobster nets are used to a lesser extent. Abia has one landing beach and the main method is line fishing.

Recreation/tourism: There are hotels at the waterfront at Prampram.



Ecological Sensitivity Atlas Map 72



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope. There is an open lagoon in the area, the Gyankai lagoon.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Gyankai Lagoon

The lagoon is an important and vulnerable ecosystems, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Vegetation: There is a degraded stand of mangrove around the Gyankai Lagoon

Birds: The lagoon is a feeding ground for birds including Little egret, Reef heron, Black-winged stilt and Common tern.

Fish and crustaceans: The fish fauna include true lagoon species such as the cichlid *Sarotherodon melanotheron* and the mudskipper *Priophthalmus kaehruti*, freshwater species like *Oreochromis niloticus* and *Tilapia zillii* and marine species like *Albula vulpes* and *Lutjanus fulgens*.

The Gyankai Lagoon is a nursery ground for marine species that spawn at sea, but have their juvenile forms washed into the lagoon. This includes for instance the fish *Mugil sp.*, *Gerres melanopterus* and the shrimps *Penaeus duorarum* and *Penaeus atlantica*.

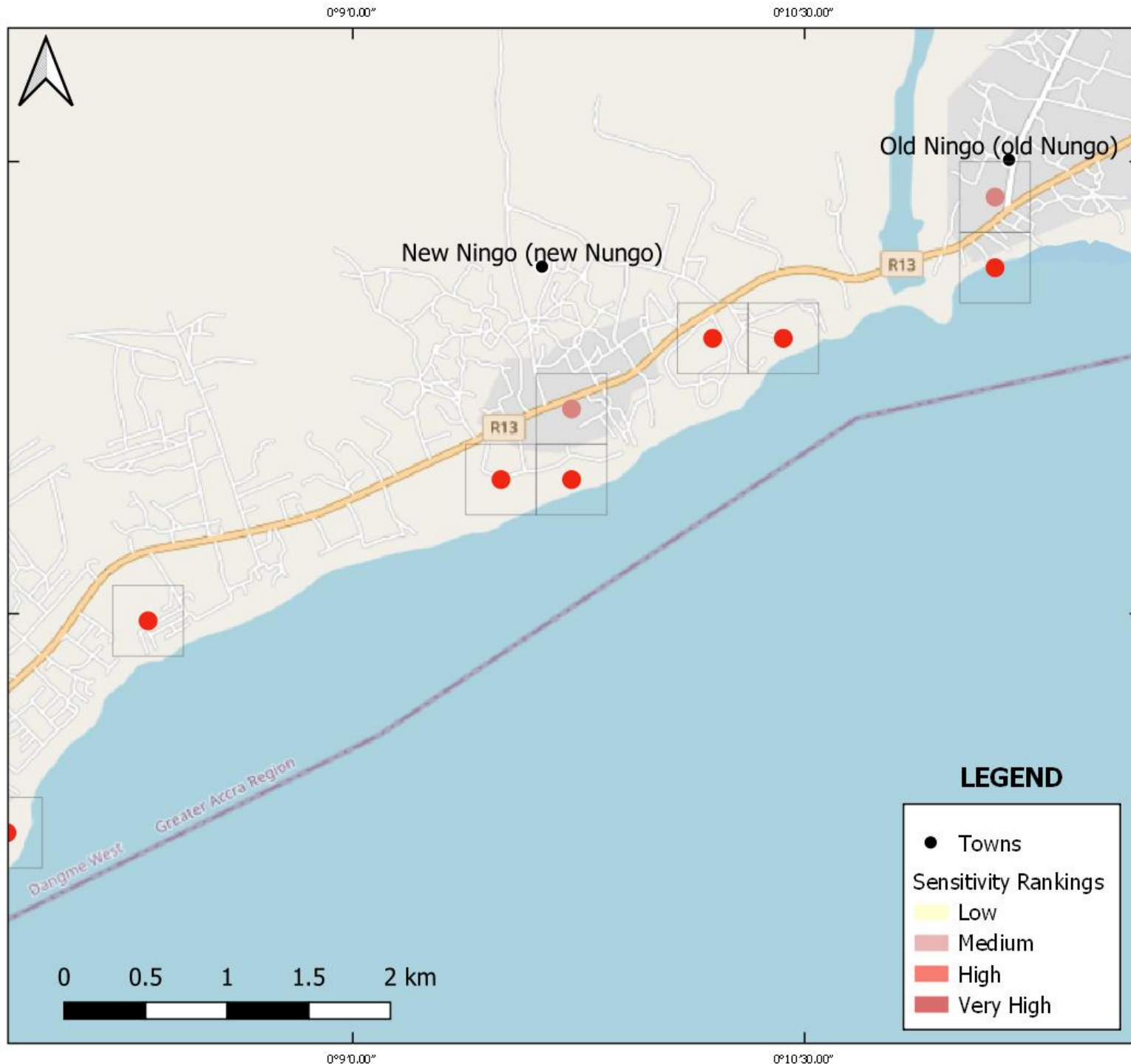
Turtle nesting sites: There are nesting sites for marine turtles on the beaches. The area is part of the main turtle nesting site in Ghana extending from Prampram to Volta estuary.

LEGEND

- Towns
- Sensitivity Rankings**
- Low
- Medium
- High
- Very High



**Socio-economic Sensitivity Atlas
Map 72**



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope. There is an open lagoon in the area, the Gyankai lagoon.

HUMAN ACTIVITY

Coastal Fishery: New Ningo has a landing beach at Torah and line fishing is the main fishing method used. At Old Ningo, the fishing methods used are pursing nets, line nets and lobster nets.

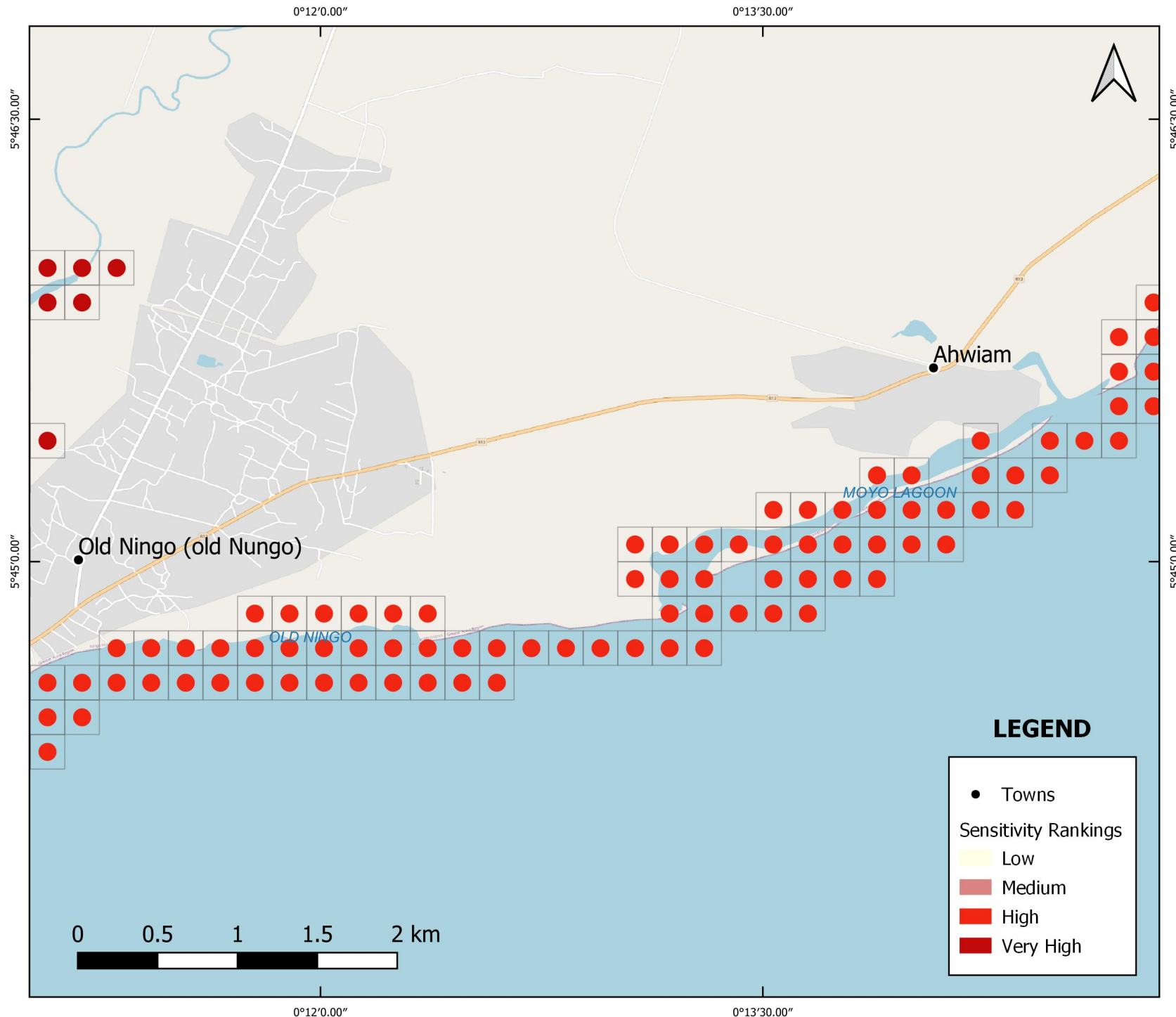
Industrial/Domestic utilization: Salt is extracted from the Gyankai Lagoon.

LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



Ecological Sensitivity Atlas Map 73



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope. There are two closed lagoons in the area. One lagoon at old Ningo and the Moyo Lagoon. They will not be affected by an oil spill at sea.

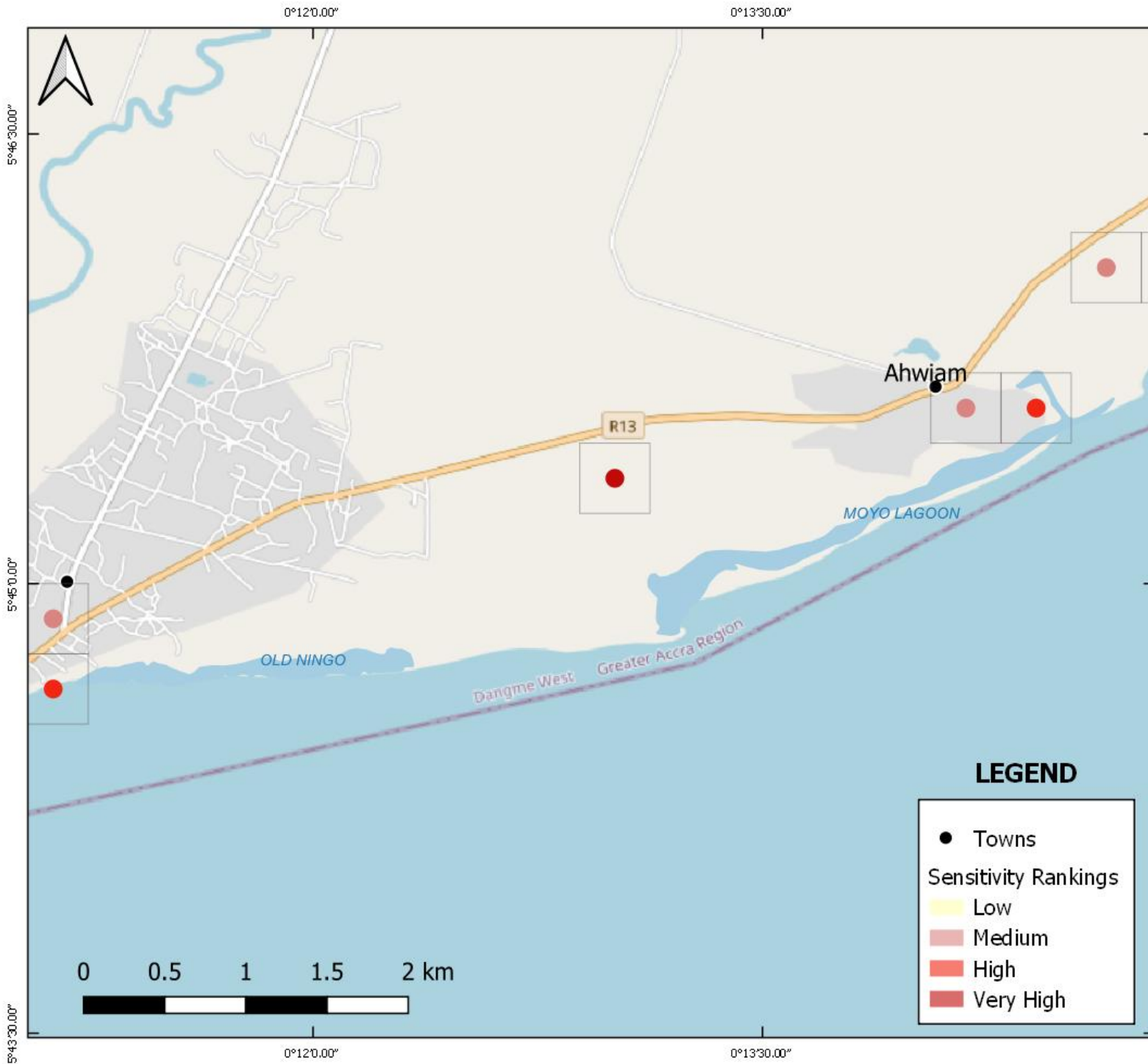
ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Turtle nesting sites: The beaches are important nesting sites for marine turtles. The area is part of the main turtle nesting site in Ghana extending from Prampram to Volta estuary.



**Socio-economic Sensitivity Atlas
Map 73**



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope. There are two closed lagoons in the area. One lagoon at old Ningo and the Moyo Lagoon. They will not be affected by an oil spill at sea.

HUMAN ACTIVITY

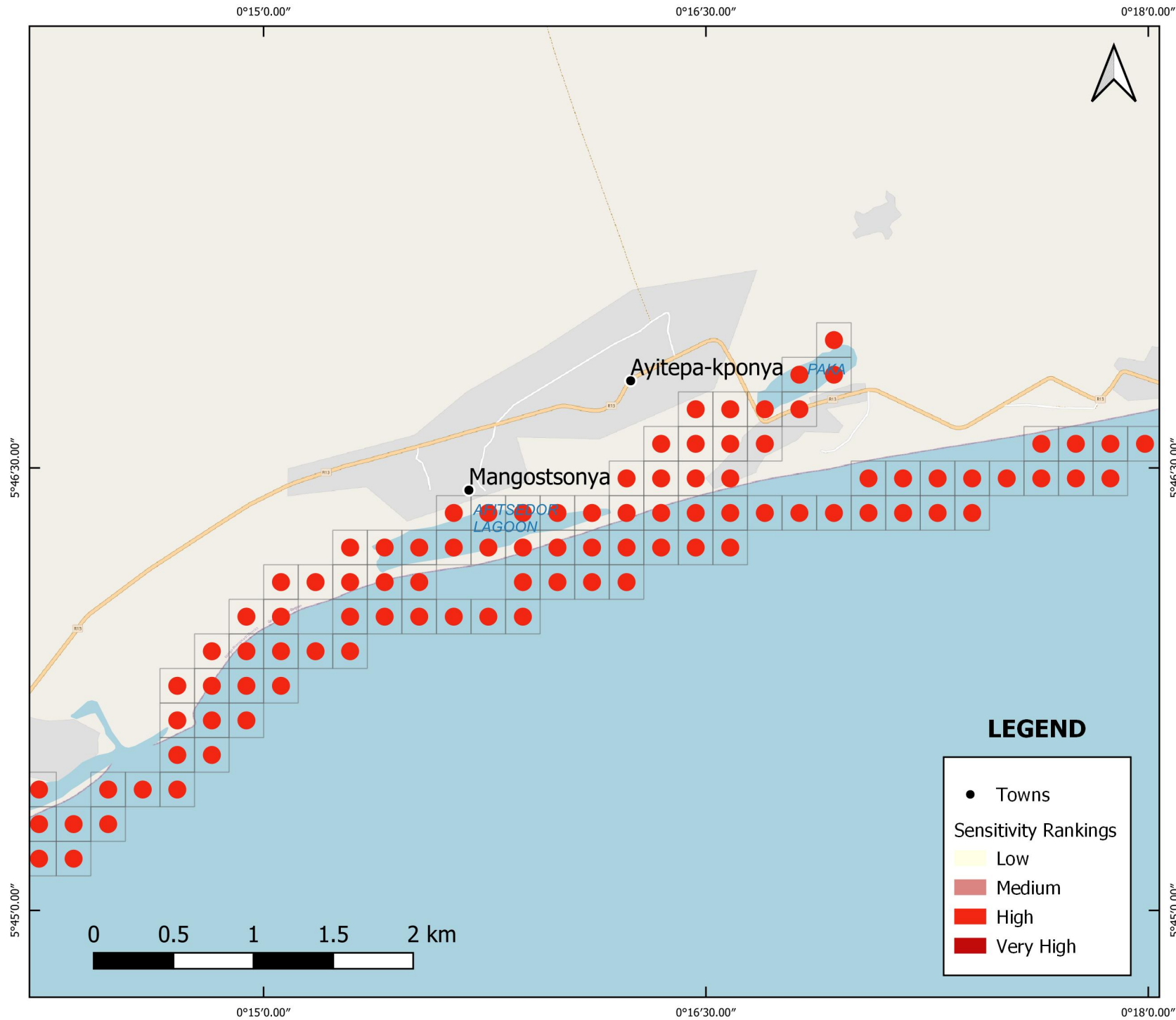
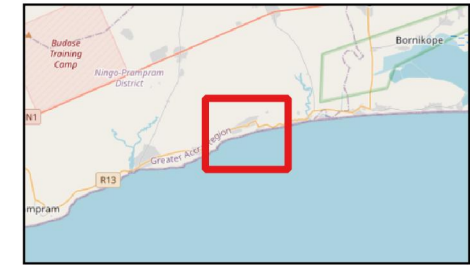
Coastal Fishery: Ahwiam has one landing beach and the main fishing method used is line net with lobster nets, pursuing nets and set nets used with less frequency.
Industrial/Domestic utilization: There are salt ponds in connection with the lagoons.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Ecological Sensitivity Atlas Map 74



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope. There are two lagoons in the area; the Afitsedor and the Paka Lagoon. They are both closed lagoons and will therefore not be affected by an oil spill at sea.

ECOLOGICAL ENVIRONMENT

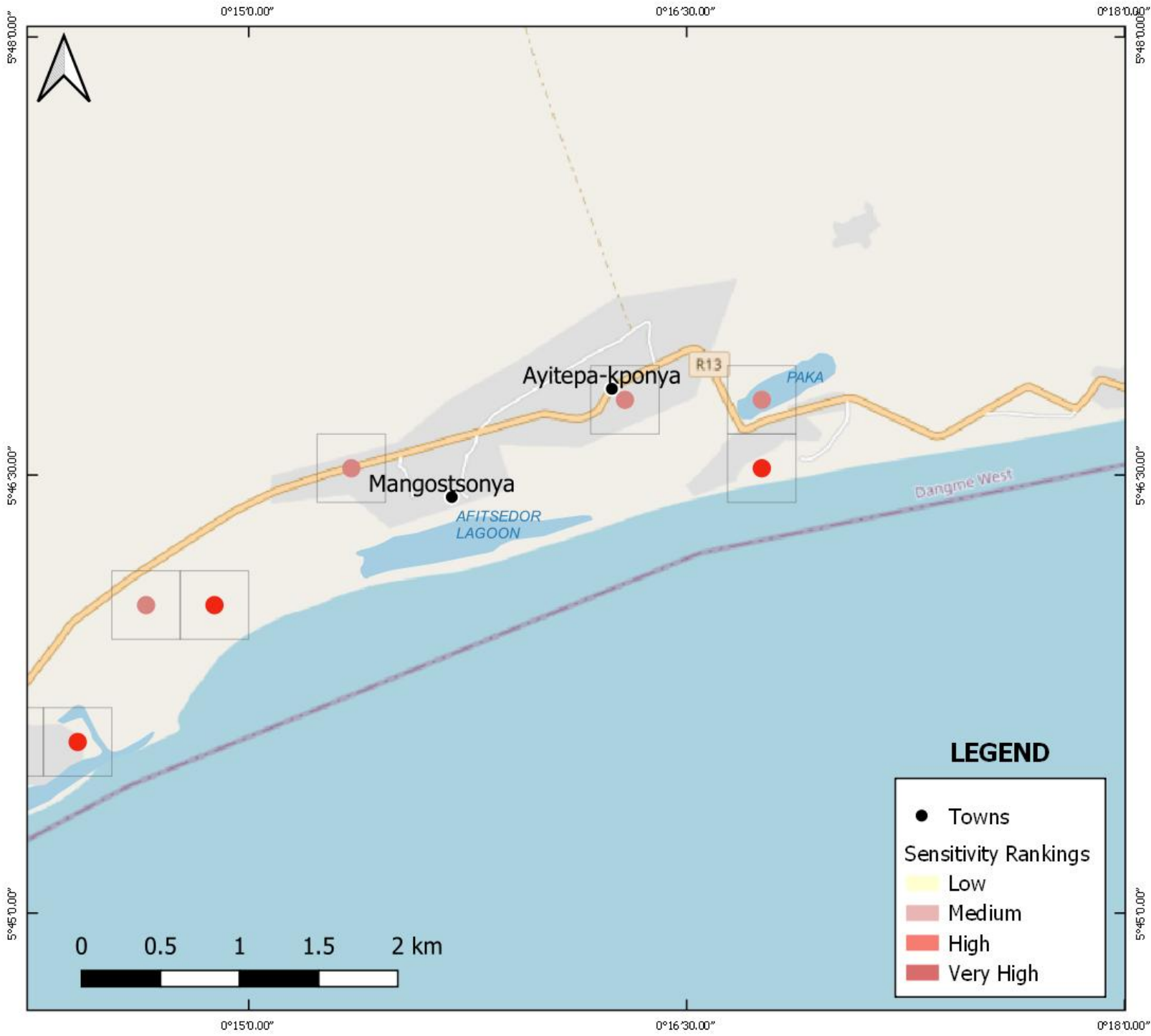
Turtle nesting sites: The beaches are important nesting sites for marine turtles. The area is part of the main turtle nesting site in Ghana extending from Prampram to Volta estuary.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



**Socio-economic Sensitivity Atlas
Map 74**



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope. There are two lagoons in the area; the Afitsedor and the Paka Lagoon. They are both closed lagoons and will therefore not be affected by an oil spill at sea.

HUMAN ACTIVITY

Coastal Fishery: Mangostsonya has one landing beach and the predominant fishing method used is purse seining while lobster nets, 'hifa nifa' and set nets occur with less frequency. Ayetepah has one landing beach at Afienya with beach seining, line fishing and purse seining being the main fishing methods employed.

Kpogunor has two landing beaches, at Afienya and Kpungor, respectively. The fishing methods used are mainly purse seining, beach seining, hook and line and set nets.

Industrial/Domestic utilization: Salt is mined from the lagoons during the dry season. There are also salt ponds.

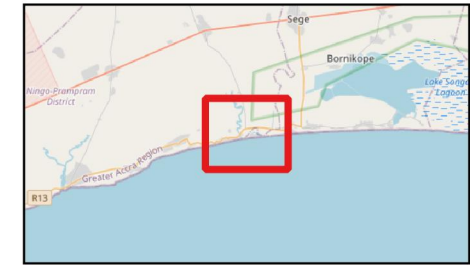
LEGEND

- Towns
- Sensitivity Rankings**
- Low
- Medium
- High
- Very High



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development programme (O4D). All Rights Reserved.

Ecological Sensitivity Atlas Map 75

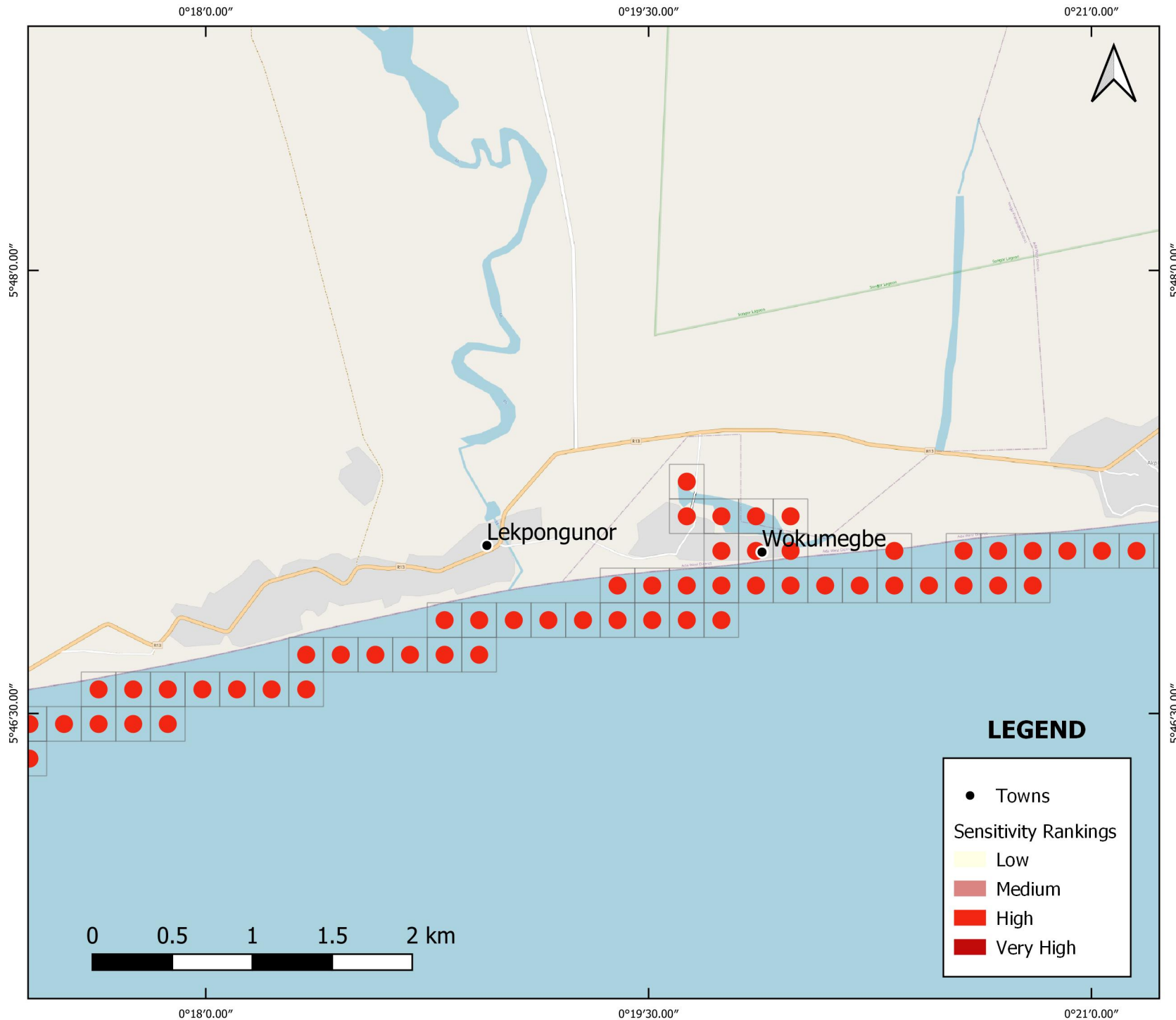


PHYSICAL ENVIRONMENT

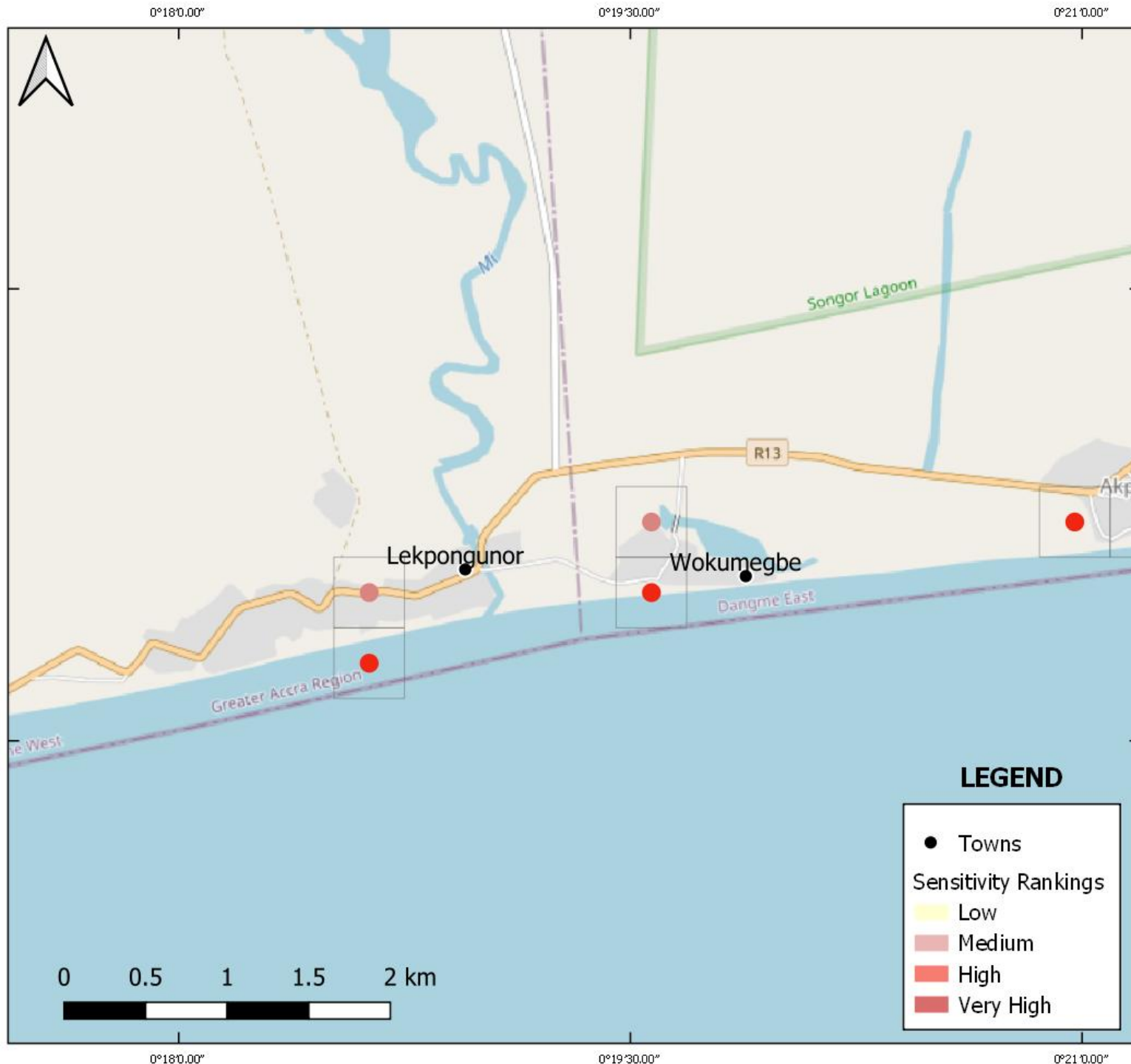
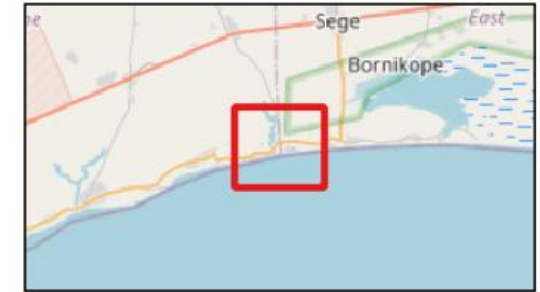
The beach is coarse sand with a moderate slope.

ECOLOGICAL ENVIRONMENT

Turtle nesting sites: The beaches are important nesting sites for marine turtles. The area is part of the main turtle nesting site in Ghana extending from Prampram to Volta estuary.



**Socio-economic Sensitivity Atlas
Map 75**



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope.

HUMAN ACTIVITY

Coastal Fishery: Kpongunor has two landing beaches, at Afienya and Kpongur, respectively. The fishing methods used are mainly purse seining, beach seining, hook and line and set nets. Wokumegbe has one landing beach. The dominant fishing method there is purse seining. Beach seining and line fishing is also carried out but to a lesser extent.



Ecological Sensitivity Atlas Map 76

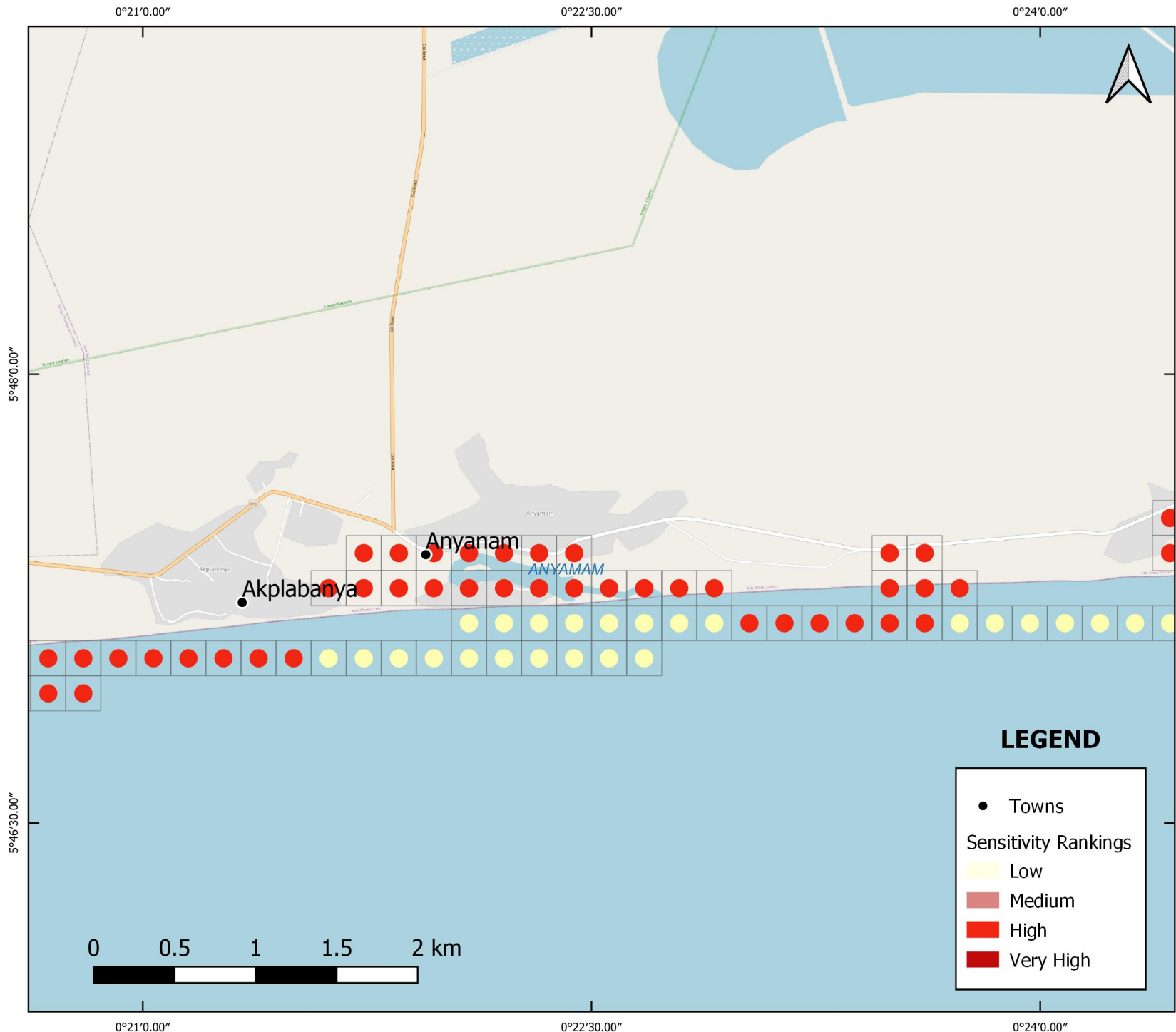


PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope. There is a closed lagoon in the area, the Anyanam Lagoon. This lagoon will not be affected by an oil spill at sea.

ECOLOGICAL ENVIRONMENT

Turtle nesting sites: The beaches west of Anyama are important nesting sites for marine turtles. The area is part of the main turtle nesting site in Ghana extending from Prampram to Volta estuary.



Socio-economic Sensitivity Atlas Map 76

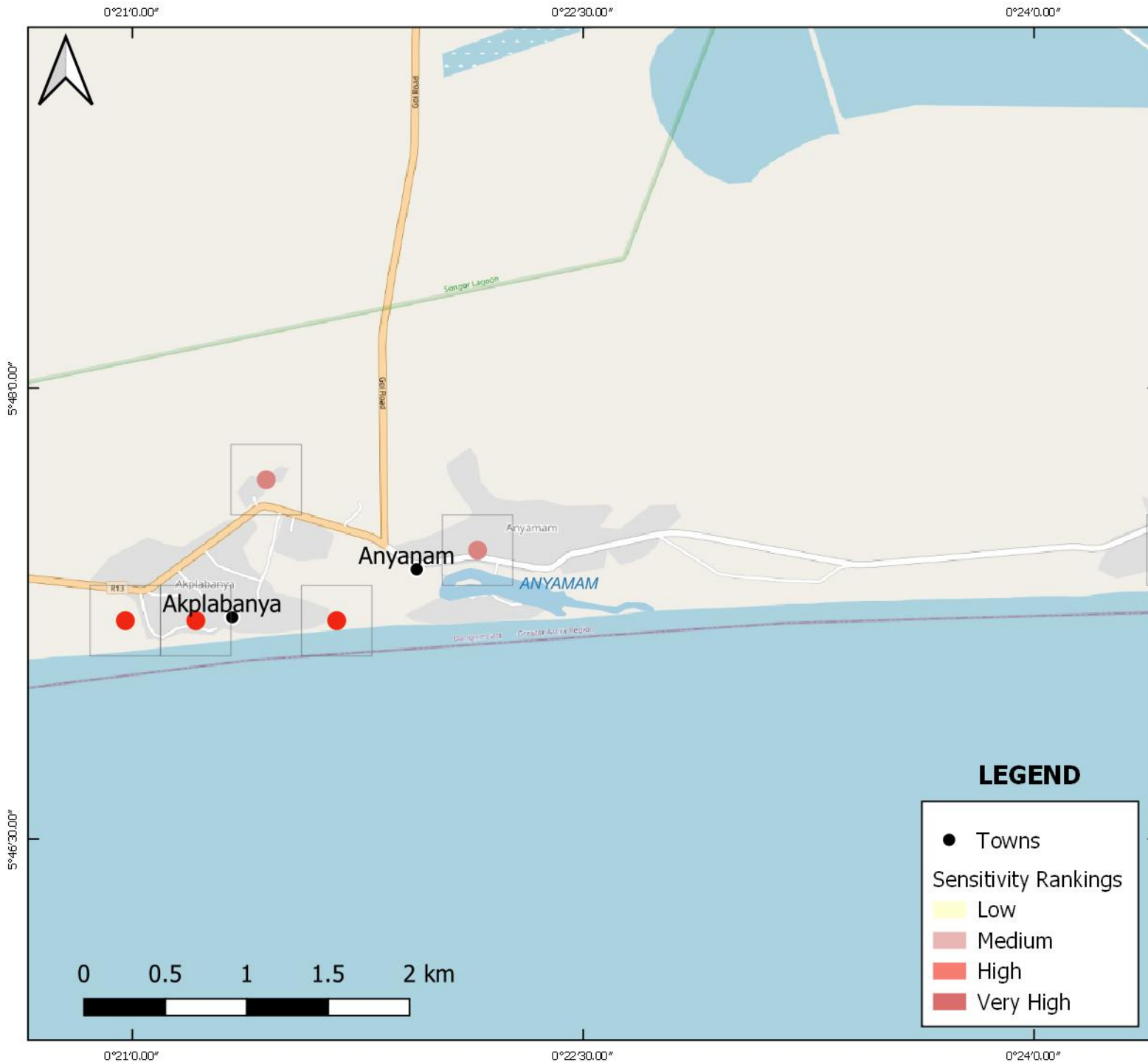


PHYSICAL ENVIRONMENT

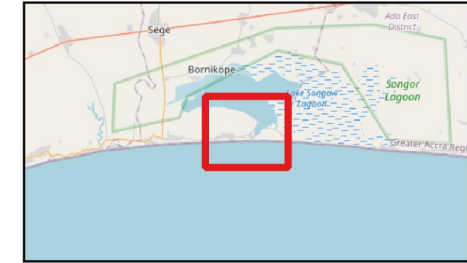
The beach is coarse sand with a moderate slope. There is a closed lagoon in the area, the Anyamanm Lagoon. This lagoon will not be affected by an oil spill at sea.

HUMAN ACTIVITY

Coastal Fishery: Akplabanya has one landing beach where purse seining is the main fishing method used. Beach seining is also carried out, but to a lesser extent. Anyamanm has one landing beach. The dominant fishing method is purse seining. Beach seining is also carried out to a lesser degree.



Ecological Sensitivity Atlas Map 77



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope. Songor lagoon covers an area of 79.2km² (7,920 ha). It is a closed lagoon without a connection to the sea. However, at certain times an opening is made using a bulldozer in

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Songor Lagoon

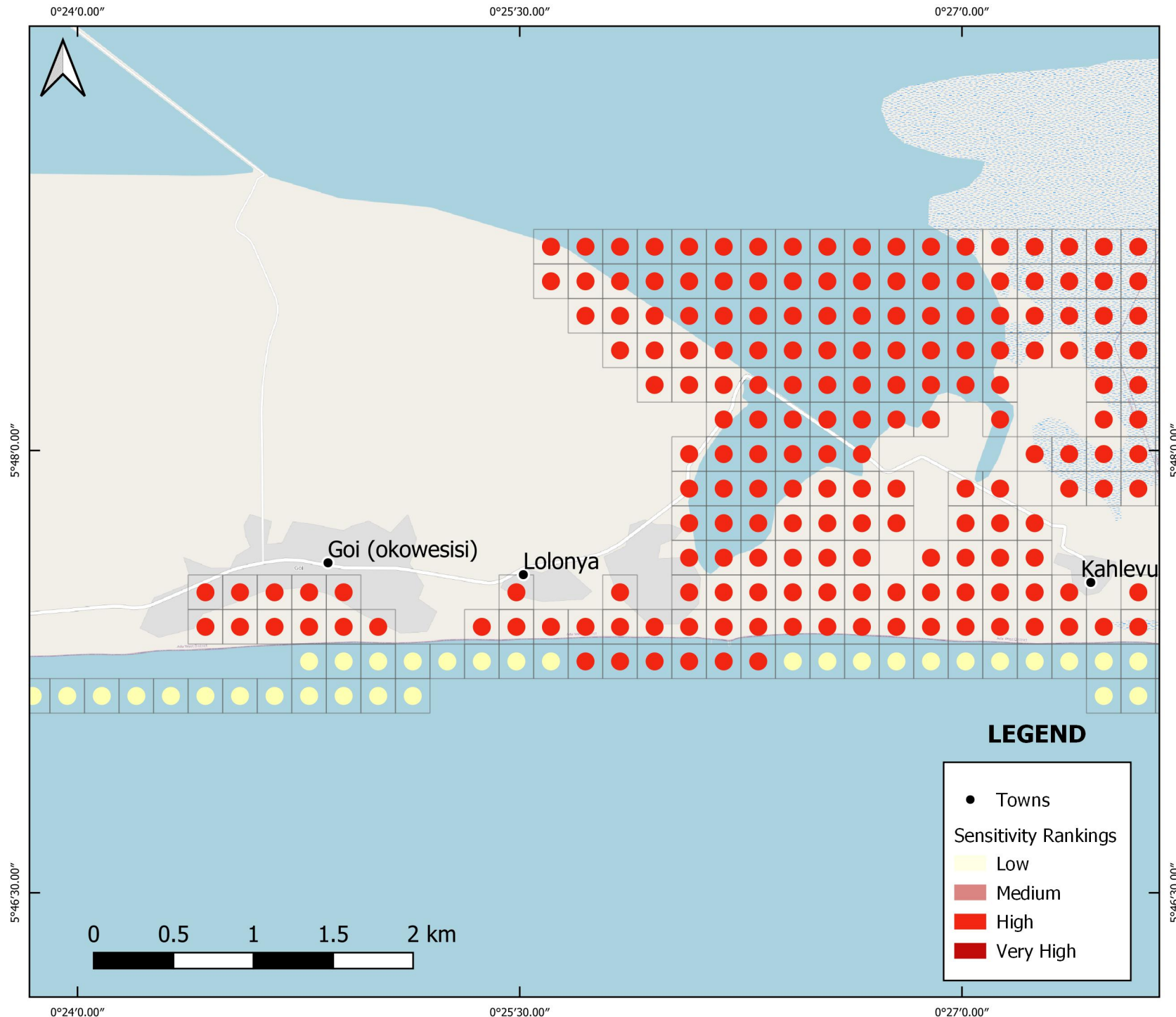
Protection: Songor Lagoon was designated a Ramsar site in 1992 (Ramsar site no 566).

Birds: The Songor supports spectacular concentrations of seashore birds comprising terns, waders, herons and ducks with a previously estimated population of 110,000. Traditionally, the site supports the highest total tern counts on the Ghanaian coast and it is particularly important for the Roseate tern (*Sterna dougalli*), one of two bird species in Ghana listed as rare by the IUCN. Furthermore, over 80% of the total number of waterfowl is of Palearctic migrant origin.

The wetland supports internationally important populations of seven species of waders: Spotted redshank, Greenshank, Ringed plover, Curlew sandpiper, little stint, Avocet and Black-tailed godwit. The site has the highest tern count on the Ghanaian coast and supports nationally important populations (over 10% of the total coastal count) of at least 32 species of water birds. Birds are most abundant during September to January.

Fish and crustaceans: The lagoon is a nursery site for fish and crustaceans. The main fish species include *Sarotherodon melanotheron*, and *Tilapia guineensis*. Crustaceans include the swimming blue-legged lagoon crab *Callinectes latimanus* and the land crab *Cardiosoma armatum*.

Turtle nesting sites: There are important nesting sites for marine turtles at Lolonya. The area is part of the main turtle nesting site in Ghana extending from Prampram to Volta estuary.



LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High

Socio-economic Sensitivity Atlas Map 77



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope. Songor lagoon covers an area of 79.2km² (7,920 ha). It is a closed lagoon without a connection to the sea. However, at certain times an opening is made using a bulldozer in connection with salt mining.

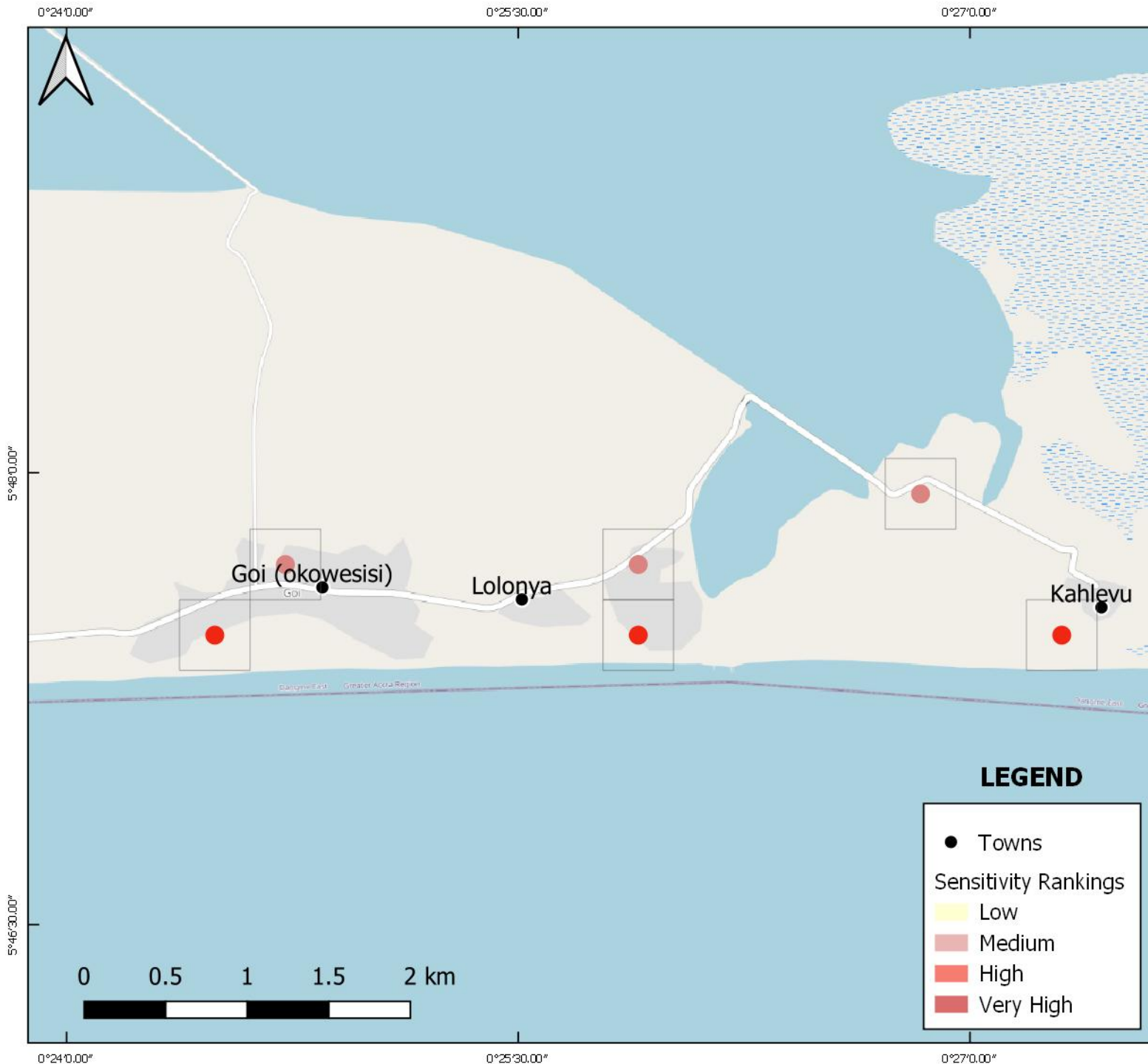
HUMAN ACTIVITY

Coastal Fishery: Goi has one landing beach. The fishing methods used are mainly pursing nets with beach seining and other set nets used to a lesser degree.

Lolonya has one landing beach with pursing nets being mainly used. Beach seining are used to a lesser extent.

Lagoon Fishery: Local communities fish in the lagoon.

Industrial/Domestic utilization: Salt mining is carried out in the lagoon. The sandbar is breached with a bulldozer to link to the sea and allow inflow of sea water at high tide.



0°27'0.00"

0°28'30.00"

0°30'0.00"

Ecological Sensitivity Atlas Map 78



5°48'0.00"

5°48'0.00"

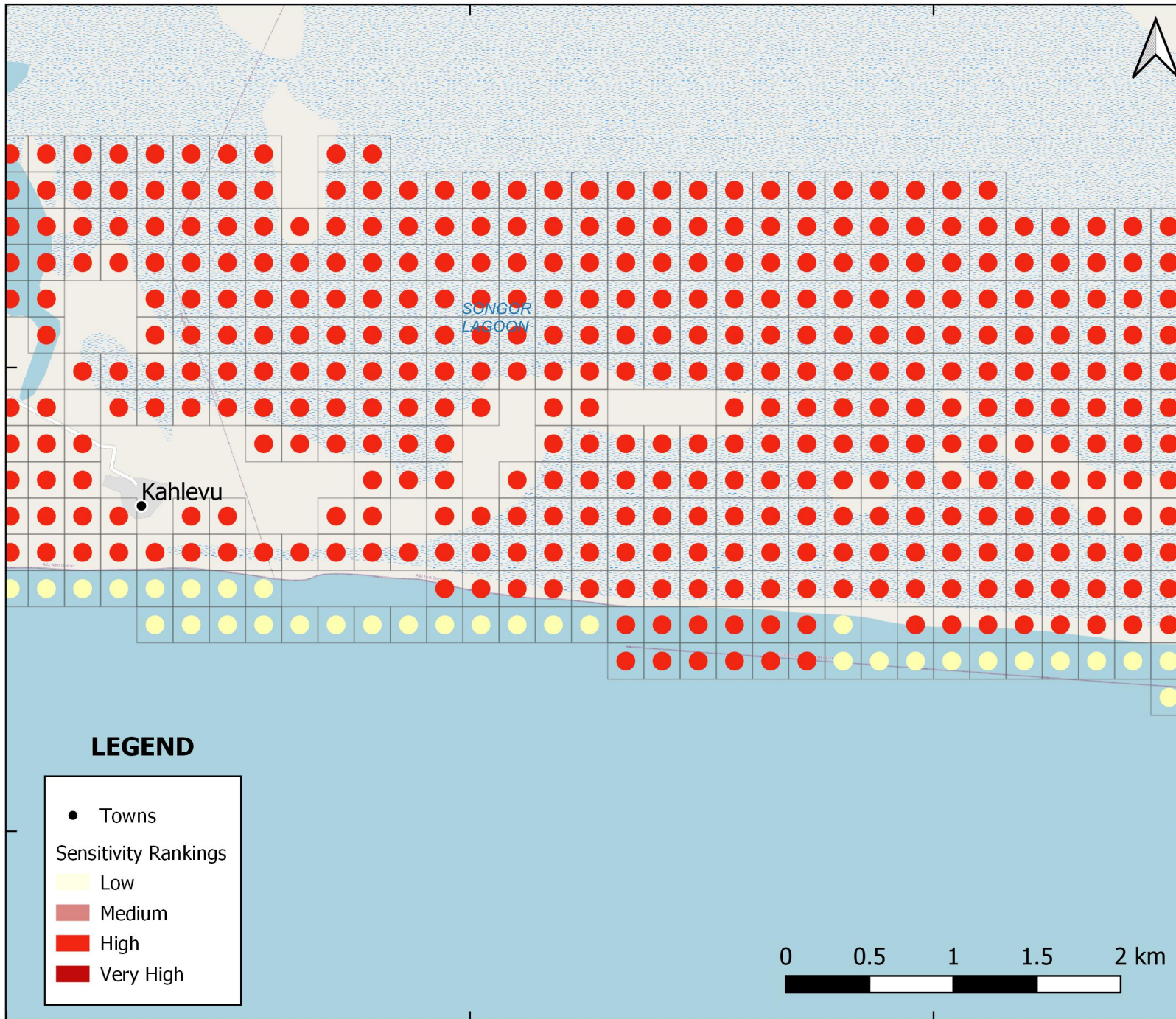
5°46'30.00"

5°46'30.00"

0°27'0.00"

0°28'30.00"

0°30'0.00"



LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High

PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope. Songor lagoon covers an area of 79.2km² (7,920 ha). It is a closed lagoon without connection to the sea. However, at certain times an opening is made using a bulldozer in connection

ECOLOGICAL ENVIRONMENT

Songor Lagoon.

Protection: Songor Lagoon was designated a Ramsar site in 1992. (Ramsar site no 566).

Birds: The Songor supports spectacular concentrations of seashore birds comprising terns, waders, herons and ducks with a previously estimated population of 110,000. Traditionally, the site supports the highest total tern counts on the Ghanaian coast and it is particularly important for the Roseate tern (*Sterna dougalli*), one of two bird species in Ghana listed as rare by the IUCN. Furthermore, over 80% of the total number of waterfowl is of Palearctic migrant origin.

The wetland supports internationally important populations of seven species of waders: Spotted redshank, Greenshank, Ringed plover, Curlew sandpiper, little stint, Avocet and Black-tailed godwit. The site has the highest tern count on the Ghanaian coast and supports nationally important populations (over 10% of the total coastal count) of at least 32 species of water birds. Birds are most abundant during September to January.

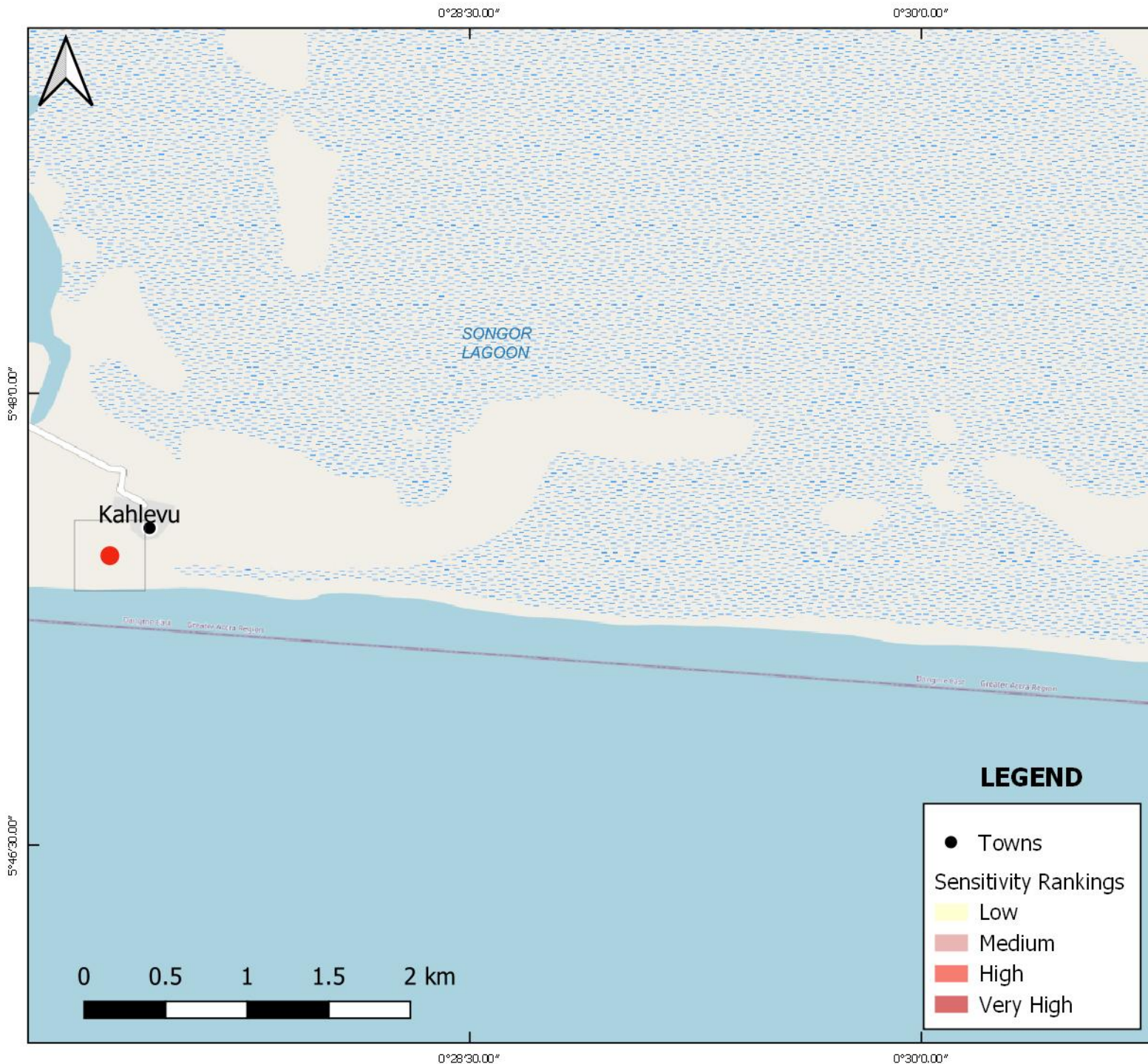
Fish and crustaceans: The lagoon is a nursery site for fish and crustaceans. The main fish species include *Sarotherodon melanotheron*, *Tilapia guineensis*. Crustaceans include the swimming blue-legged lagoon crab *Callinectes latimanis* and the land crab *Cardiosoma armatum*.

Turtle nesting sites: There are nesting sites for marine turtle near Vunya. The area is part of the main turtle nesting site in Ghana extending from Prampram to Volta estuary.



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development Programme (OFD). All Rights Reserved.

Socio-economic Sensitivity Atlas Map 78



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope. Songor lagoon covers an area of 79.2km² (7,920 ha). It is a closed lagoon without connection to the sea. However, at certain times an opening is made using a bulldozer in connection with salt mining.

HUMAN ACTIVITY

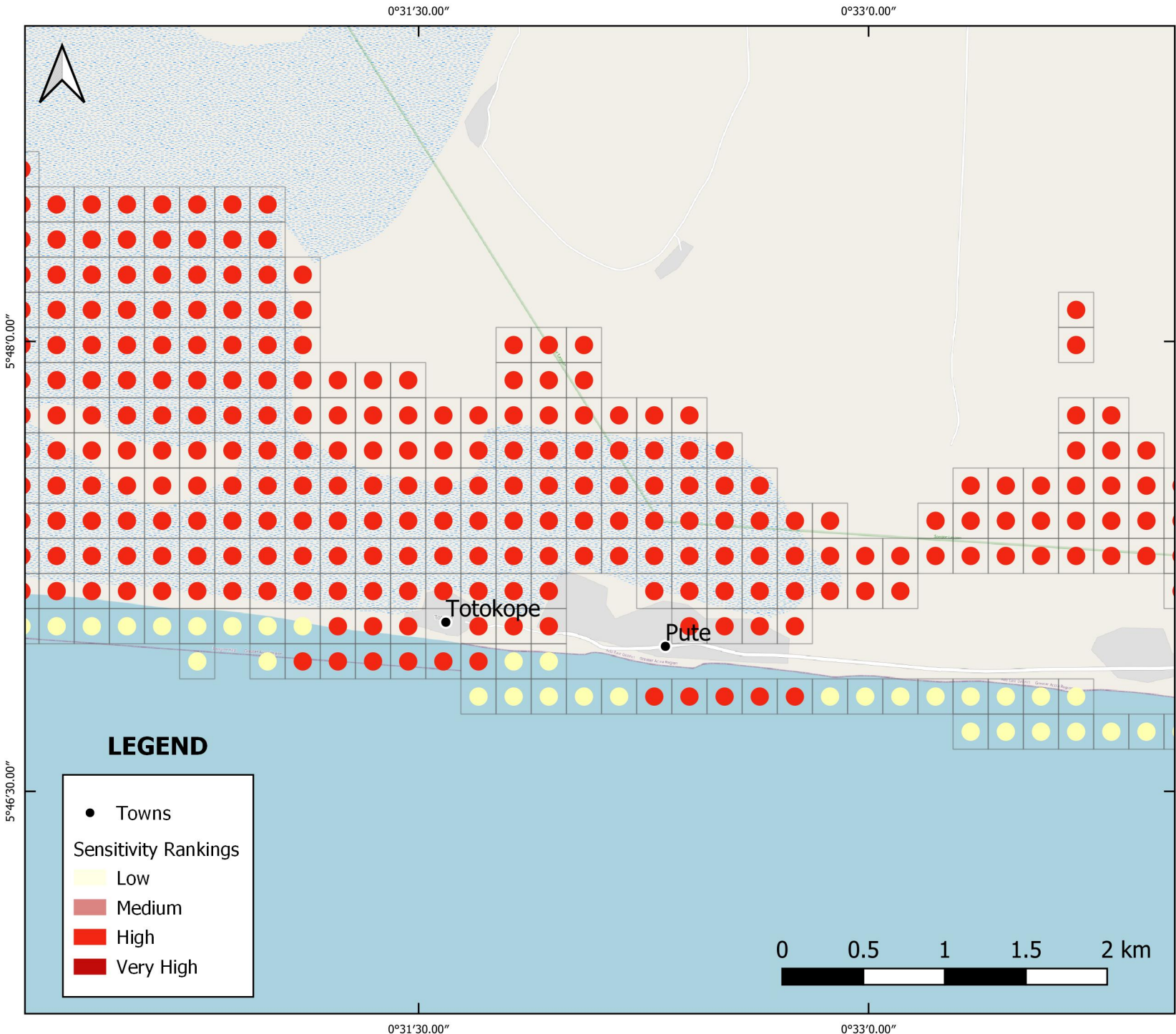
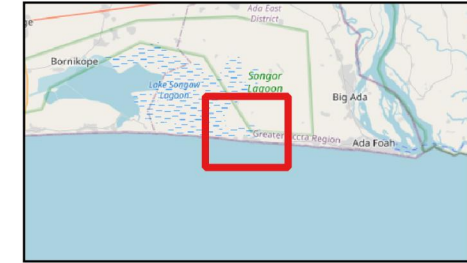
Coastal Fishery: Kahlevu has two landing beaches located at Kahlevu and Kpotitsekope.

Lagoon Fishery: Local communities fish in the lagoon.

Industrial/Domestic utilization: Salt mining is carried out in the lagoon. The sandbar is breached with a bulldozer to link to the sea and allow inflow of sea water at high tide.



Ecological Sensitivity Atlas Map 79



LEGEND

- Towns

Sensitivity Rankings

- Low
- Medium
- High
- Very High

PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope. Songor lagoon covers an area of 79.2km² (7,920 ha). It is a closed lagoon without a connection to the sea. However, at certain times an opening is made using a bulldozer in connection with salt mining.

ECOLOGICAL ENVIRONMENT

Songor Lagoon

Protection: Songor Lagoon was designated a Ramsar site in 1992 (Ramsar site no site no 566).

Birds: The Songor supports spectacular concentrations of seashore birds comprising terns, waders, herons and ducks with a previously estimated population of 110,000. Traditionally, the site supports the highest total tern counts on the Ghanaian coast and it is particularly important for the Roseate tern (*Sterna dougalli*), one of two bird species in Ghana listed as rare by the IUCN. Furthermore, over 80% of the total number of waterfowl is of Palearctic migrant origin.

The wetland supports internationally important populations of seven species of waders: Spotted redshank, Greenshank, Ringed plover, Curlew sandpiper, little stint, Avocet and Black-tailed godwit. The site has the highest tern count on the Ghanaian coast and supports nationally important populations (over 10% of the total coastal count) of at least 32 species of water birds. Birds are most abundant during September to January.

Fish and crustaceans: The main fish species include *Sarotherodon melanotheron*, *Tilapia guineensis*. Crustaceans include the swimming blue-legged lagoon crab *Callinectes latimanus* and *Cardiosoma armatum*.

Turtle nesting sites: There are nesting sites for marine turtles at Totokpoe and Pute. The area is part of the main turtle nesting site in Ghana extending from Prampram to Volta estuary.

Socio-economic Sensitivity Atlas Map 79



PHYSICAL ENVIRONMENT

The beach is coarse sand with a moderate slope. Songor lagoon covers an area of 79.2km² (7,920 ha). It is a closed lagoon without a connection to the sea. However, at certain times an opening is made using a bulldozer in connection with salt mining.

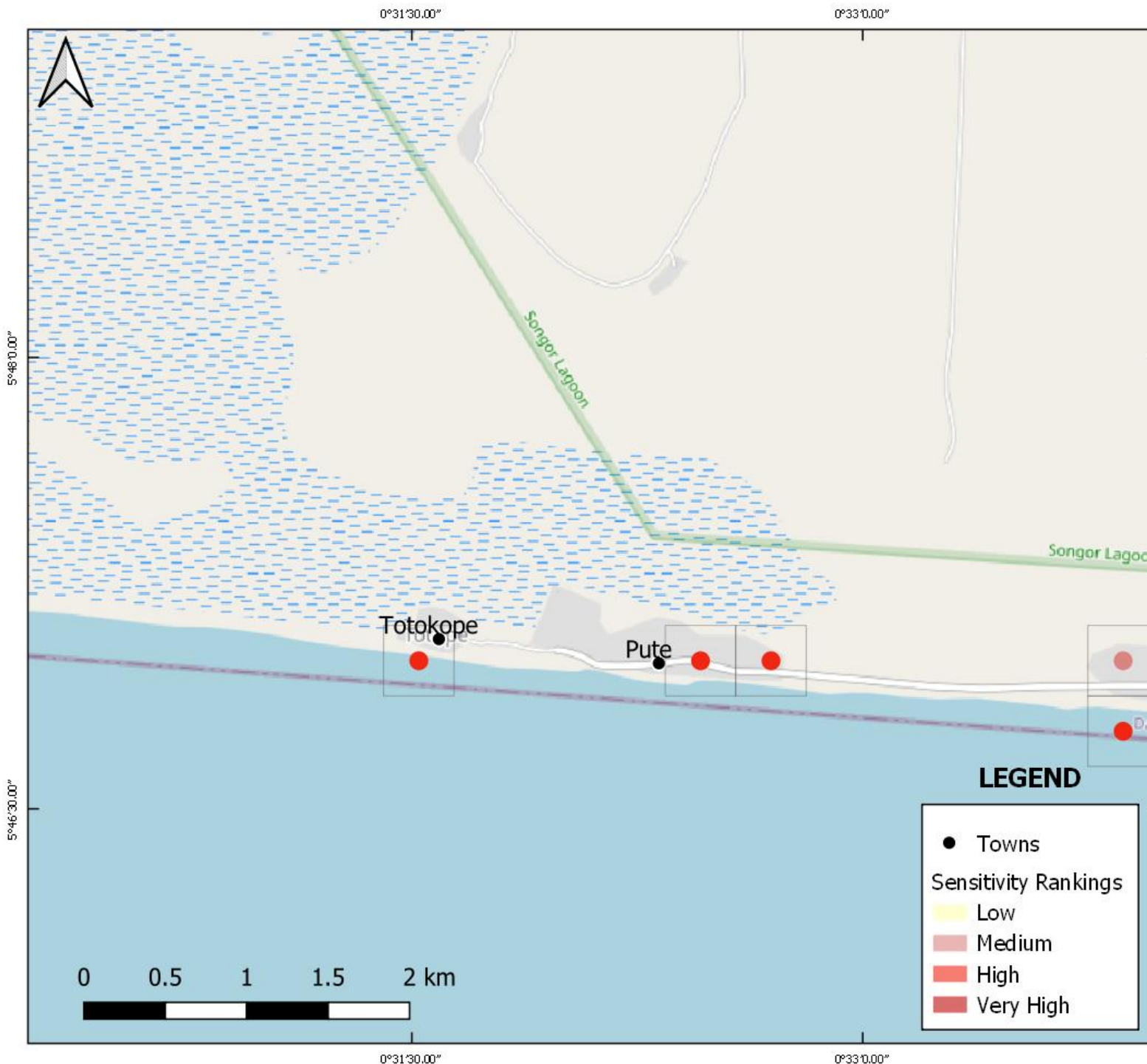
HUMAN ACTIVITY

Coastal Fishery: Totokope has one landing beach. The fishing methods used are mainly purse seining, with beach seining and lobster nets are used to a lesser extent.

Pute has one landing beach. The main fishing practice is purse seining with beach seining and all fishing being practiced to a lesser extent.

Lagoon Fishery: Local communities fish in the lagoon.

Industrial/Domestic utilization: Salt mining is carried out in the lagoon. The sandbar is breached with a bulldozer to link to the sea and allow inflow of sea water at high tide.



Ecological Sensitivity Atlas Map 80

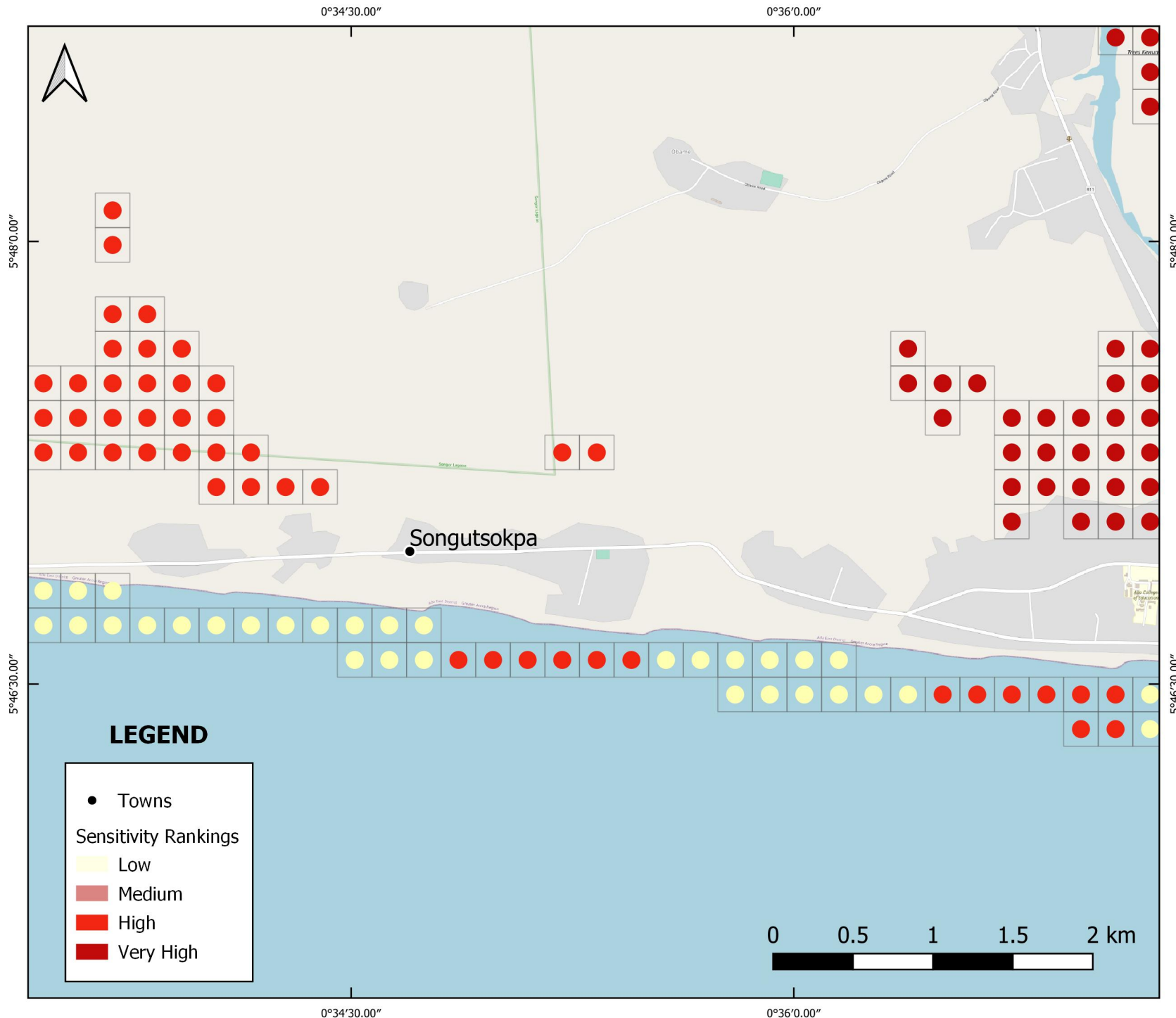


PHYSICAL ENVIRONMENT

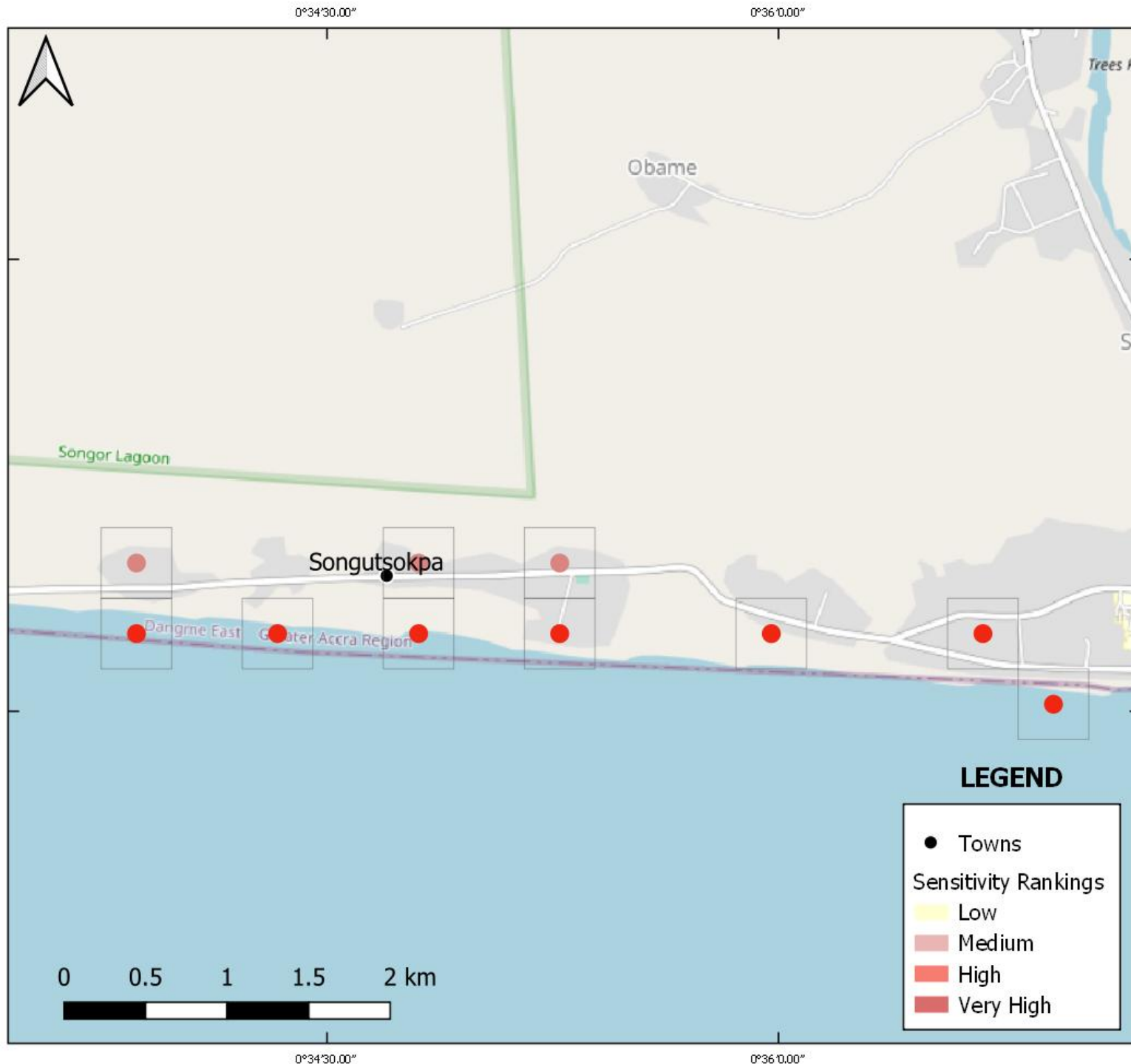
The beach is coarse sand.

ECOLOGICAL ENVIRONMENT

Turtle nesting sites: There are nesting sites for marine turtles at Ayikutsekope and Otrokope. The area is part of the main turtle nesting site in Ghana extending from Prampram to Volta estuary.



Socio-economic Sensitivity Atlas Map 80



PHYSICAL ENVIRONMENT

The beach is coarse sand.

HUMAN ACTIVITY

Coastal Fishery: There is a fish landing site at Alavanyo. The main fishing method used is beach seining. Purse seining is used to a lesser extent. Adedetse has one landing beach at Adedetsekope.

Patukope has one landing beach, the fishing methods used are beach and purse seining.

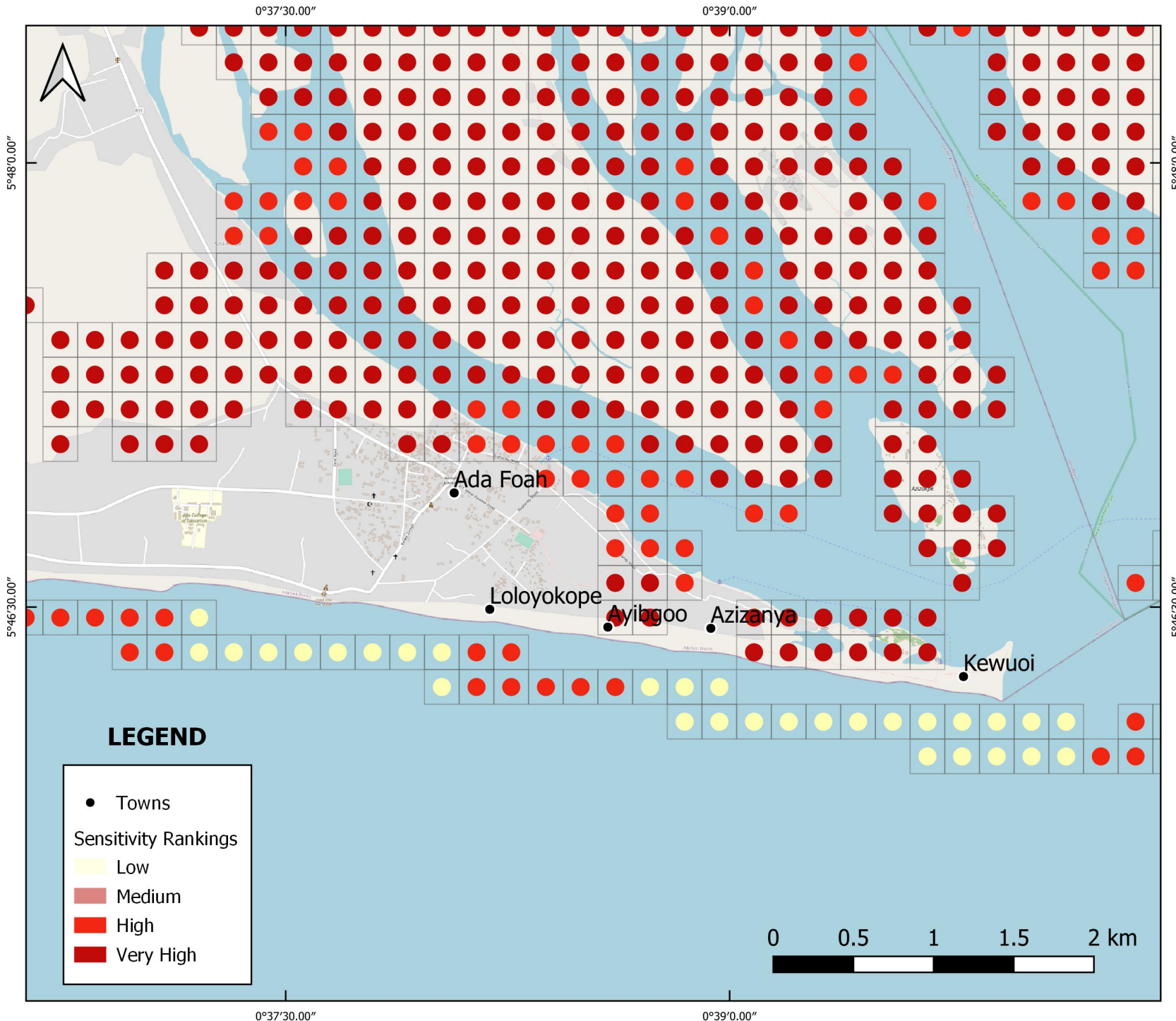
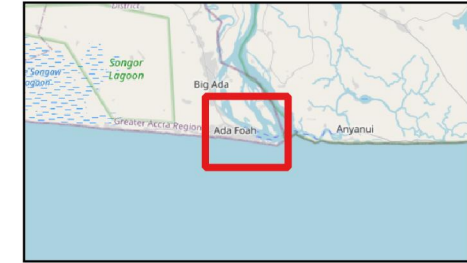
Songutsokpa has one landing beach where the dominant method of fishing is purse seining. All nets are also used.

Anyakpor has one landing beach and the main fishing method used is the ali net. Other methods used are beach seining and purse seining.

Okansekope has one landing beach and the main fishing method is beach seining.



Ecological Sensitivity Atlas Map 81



PHYSICAL ENVIRONMENT

The beach is coarse sand. The Volta estuary forms a complex system of deltas, creeks, lagoons and small islands.

ECOLOGICAL ENVIRONMENT

Volta estuary

Vegetation: There is an extensive stand of mangrove along the creeks and small islands in the estuary. The best stands of mangroves in Ghana are found at the Volta Delta, where the most common species is *Rhizophora racemosa*.

Birds: The estuary is a feeding and roosting site for waterfowl. Common species are White faced-tree duck, Cormorants, Great white egret and Grey heron.

Fish and crustaceans: The Volta estuary is an important nursery ground for fish and crustaceans. Estuarine fish include the tarpon *Megalops*, the shad *Ethmalosa dorsalis*, the long finned herring *Ilisha melanota*, the ten-pounder *Elops lacerta*, the barracuda *Sphyraena guachancho*, the tongue sole *Cynoglossus senegalensis*, the burro fish *Pomadourus jubelini*, the burrito *Brachydeuterus auritus* and the threadfin *Pentanemus quinquarius*.

Turtle nesting sites: There are nesting sites for marine turtles at Azizanya. The area is included in the main turtle nesting site in Ghana extending from Prampram to Volta estuary.

Other protected species: Manatees can be found in Volta estuary.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High

Socio-economic Sensitivity Atlas Map 81



PHYSICAL ENVIRONMENT

The beach is coarse sand. The Volta estuary forms a complex system of deltas, creeks, lagoons and small islands.

HUMAN ACTIVITY

Coastal Fishery: Otokpe has three landing beaches at Kponkpo, Mankpeti and Doemekope. The main fishing methods at Kponkpo and Mankpeti are purse seining while that at Doemekope is beach seining. Set netting is also practiced at the three landing beaches.

Azizanya has one landing beach at Mataheko where the main fishing method is purse seining. Kewunor has one landing beach where the main fishing method practiced is beach seining.

Industrial/Domestic utilization: Water is abstracted from the estuary for domestic use. The salinity of the water increases considerably at high tide due to sea water intrusion.

Recreation/tourism: There is a leisure boating facility and hotels at the water front at Ada Foah.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Ecological Sensitivity Atlas Map 82



PHYSICAL ENVIRONMENT

The beach is coarse sand. The Volta estuary forms a complex system of deltas, creeks, lagoons and small islands.

ECOLOGICAL ENVIRONMENT

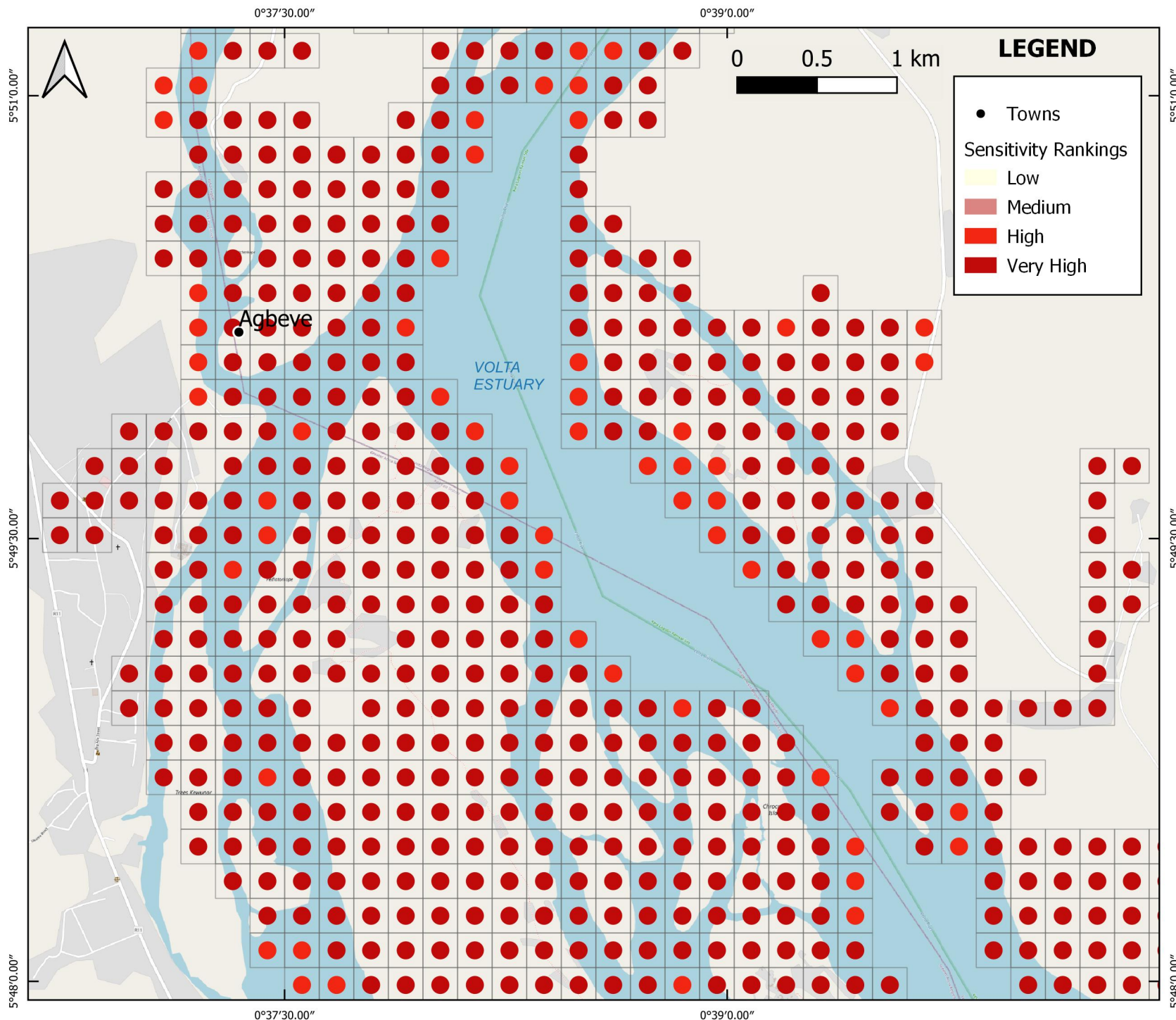
Volta estuary

Vegetation: There is an extensive stand of mangrove along the creeks and small islands in the estuary. The best stands of mangroves in Ghana are found at the Volta Delta, where the most common species is *Rhizophora racemosa*.

Birds: The estuary is a feeding and roosting site for waterfowl. Common species are White faced-tree duck, Cormorants, Great white egret and Grey heron.

Fish and crustaceans: The Volta estuary is an important nursery ground for fish and crustaceans. Estuarine fish include the tarpon *Megalops*, the shad *Ethmalosa dorsalis*, the long finned herring *Ilisha melanota*, the ten-pounder *Elops lacerta*, the barracuda *Sphyraena guachancho*, the tongue sole *Cynoglossus senegalensis*, the burro fish *Pomadourus jubelini*, the burrito *Brachydeuterus auritus* and the threadfin *Pentanemus quinquarius*.

Other protected species: Manatees can be found in Volta estuary

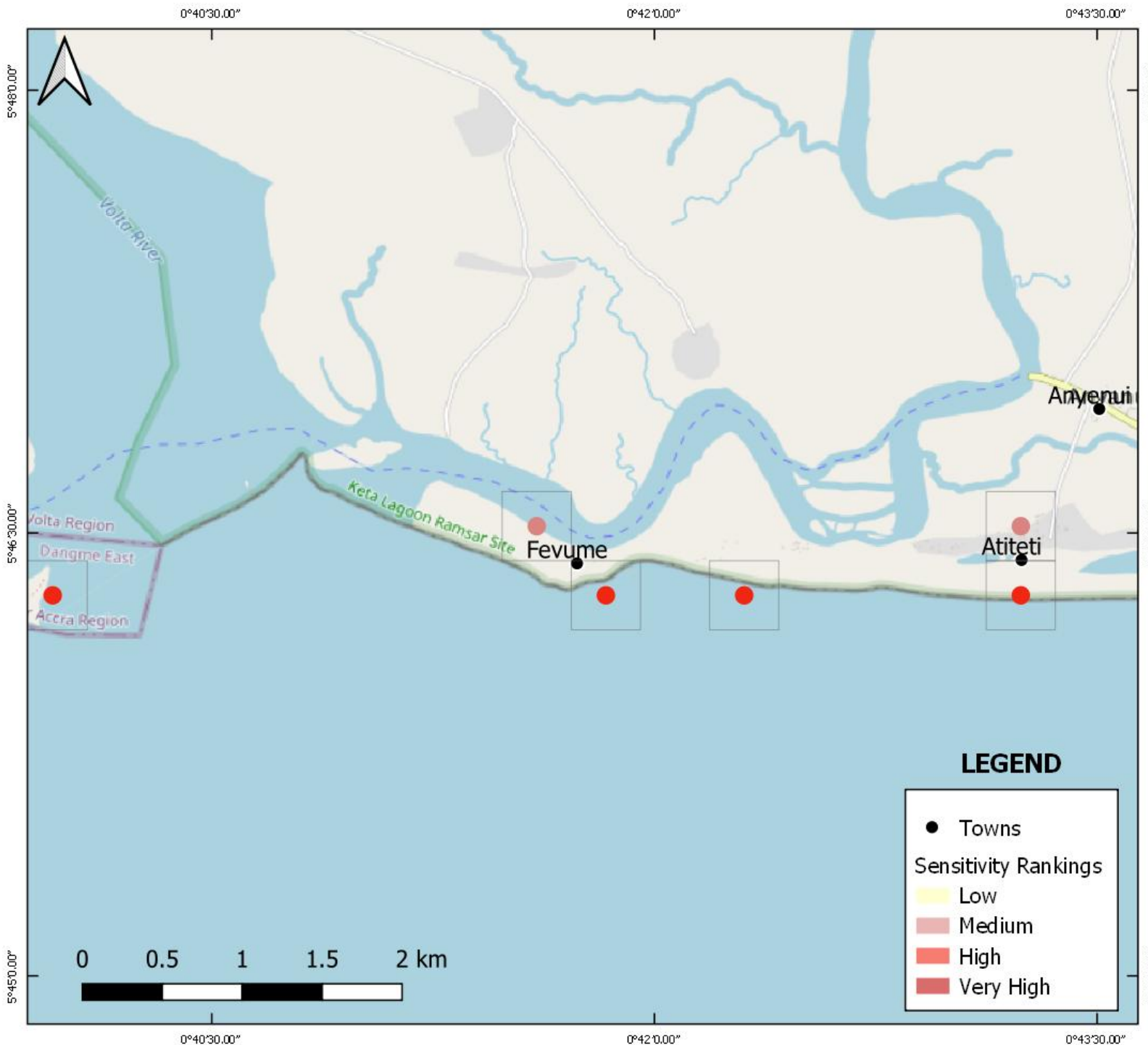


**Socio-economic Sensitivity Atlas
Map 82**



PHYSICAL ENVIRONMENT

The Volta estuary forms a complex system of deltas, creeks, lagoons and small islands.



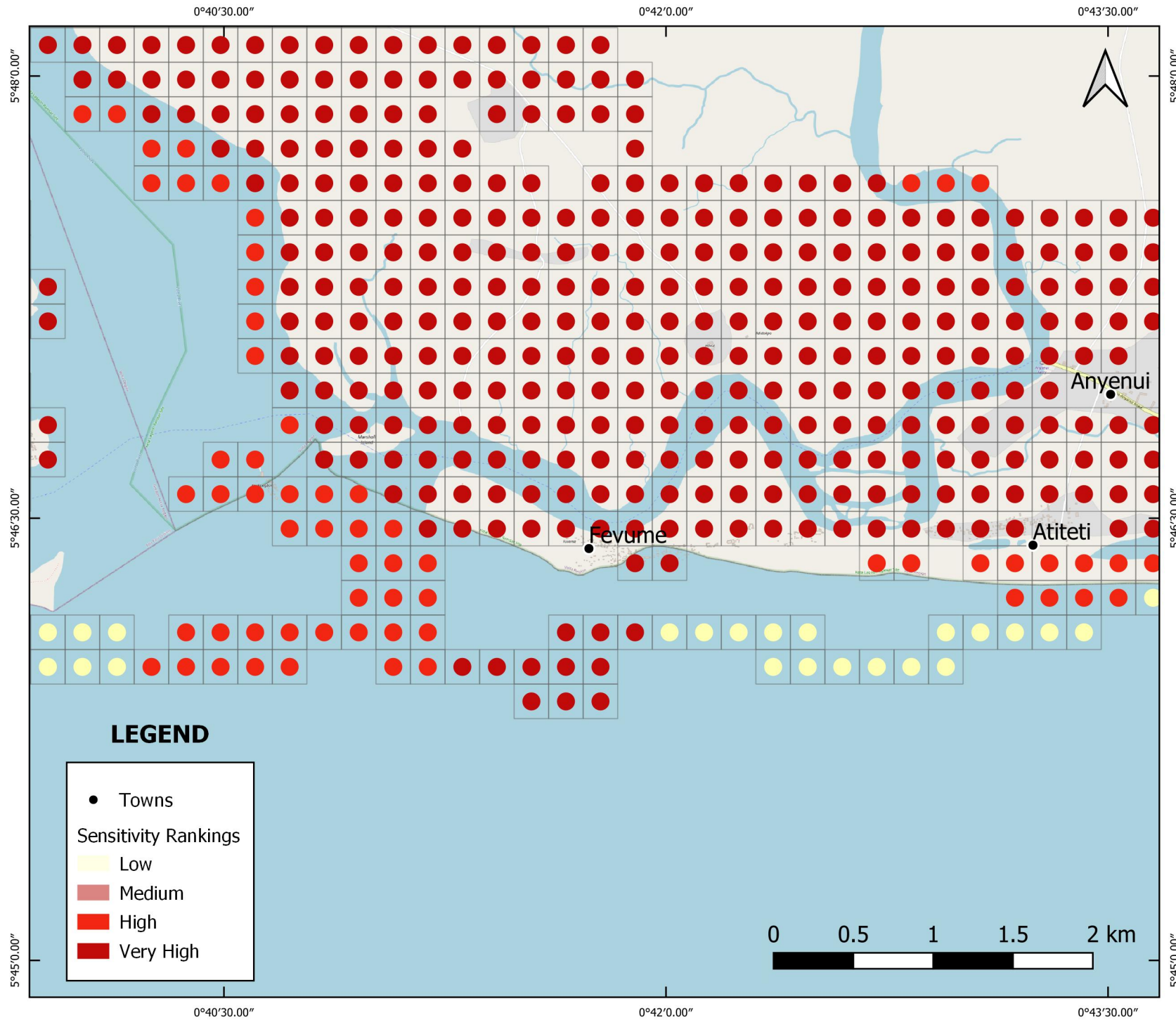
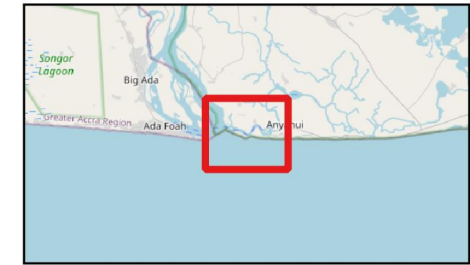
LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development programme (O4D). All Rights Reserved.

Ecological Sensitivity Atlas Map 83



PHYSICAL ENVIRONMENT

The Volta estuary forms a complex system of deltas, creeks, lagoons and small islands.

ECOLOGICAL ENVIRONMENT

Volta estuary

Vegetation: There is an extensive stand of mangrove along the creeks and small islands in the estuary. The best stands of mangroves in Ghana are found at the Volta Delta, where the most common species is *Rhizophora racemosa*.

Birds: The estuary is a feeding and roosting site for waterfowl. Common species are White faced-tree duck, Cormorants, Great white egret and Grey heron.

Fish and crustaceans: The Volta estuary is an important nursery ground for fish and crustaceans. Estuarine fish include the tarpon *Megalops*, the shad *Ethmalosa dorsalis*, the long finned herring *Ilisha melanota*, the ten-pounder *Elops lacerta*, the barracuda *Sphyraena guachancho*, the tongue sole *Cynoglossus senegalensis*, the burro fish *Pomadasys jubelini*, the burrito *Brachydeuterus auritus* and the threadfin *Pentanemus quinquarius*.

Other protected species: Manatees can be found in Volta estuary

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



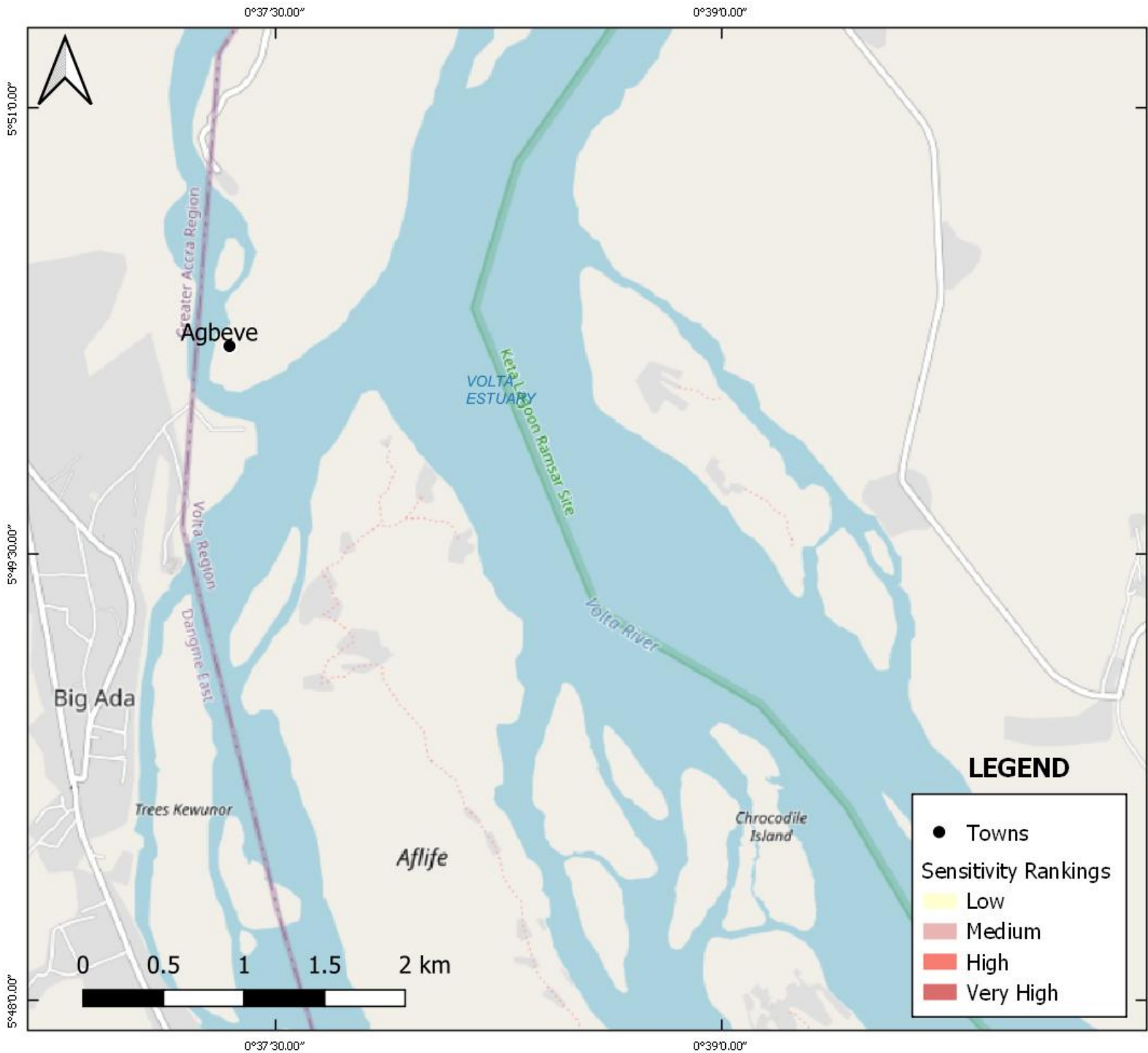
Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development Programme (OFD). All Rights Reserved.

**Socio-economic Sensitivity Atlas
Map 83**

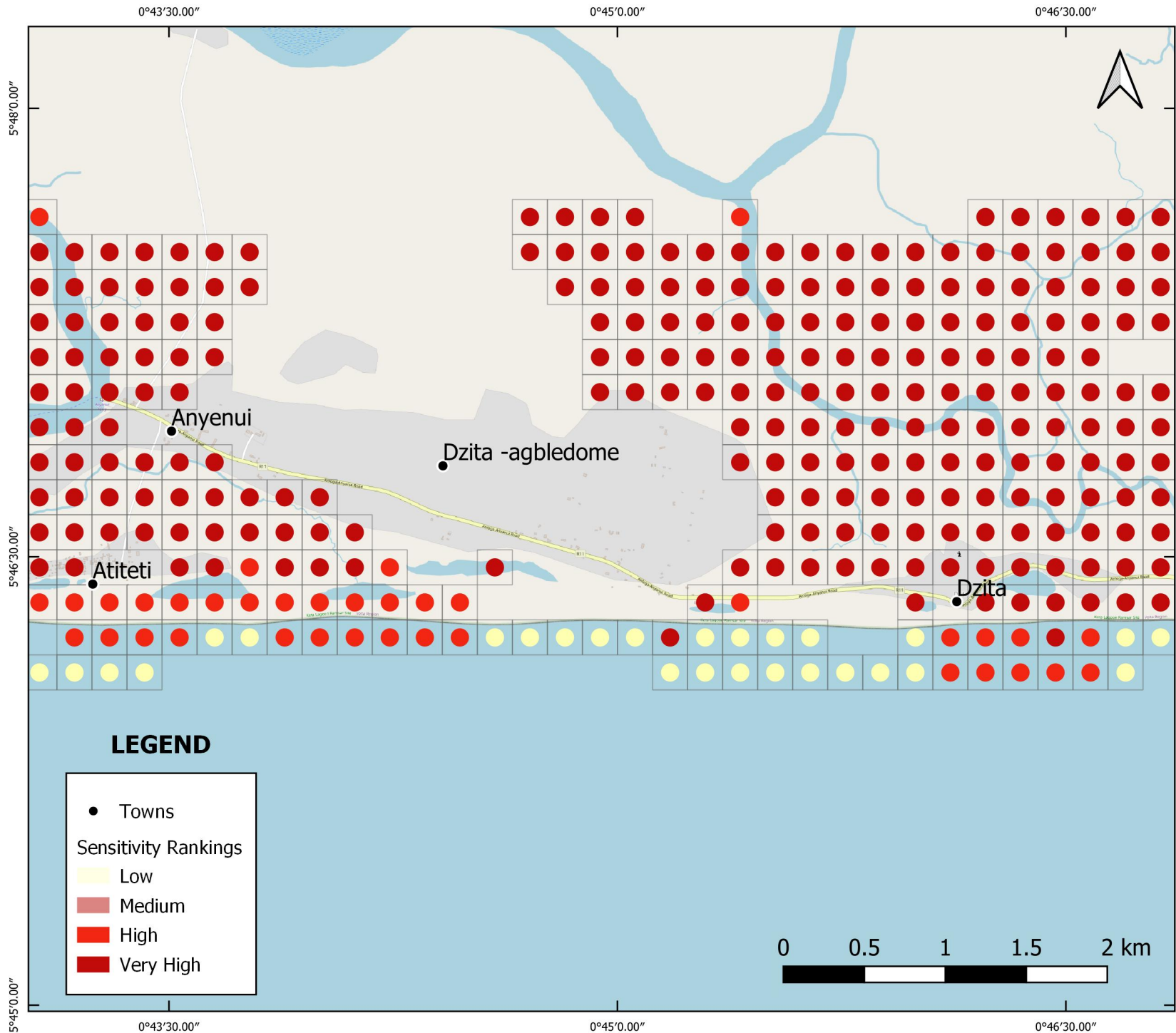


PHYSICAL ENVIRONMENT

The beach is coarse sand. The Volta estuary forms a complex system of deltas, creeks, lagoons and small islands.



Ecological Sensitivity Atlas Map 84



PHYSICAL ENVIRONMENT

The beach is coarse sand.

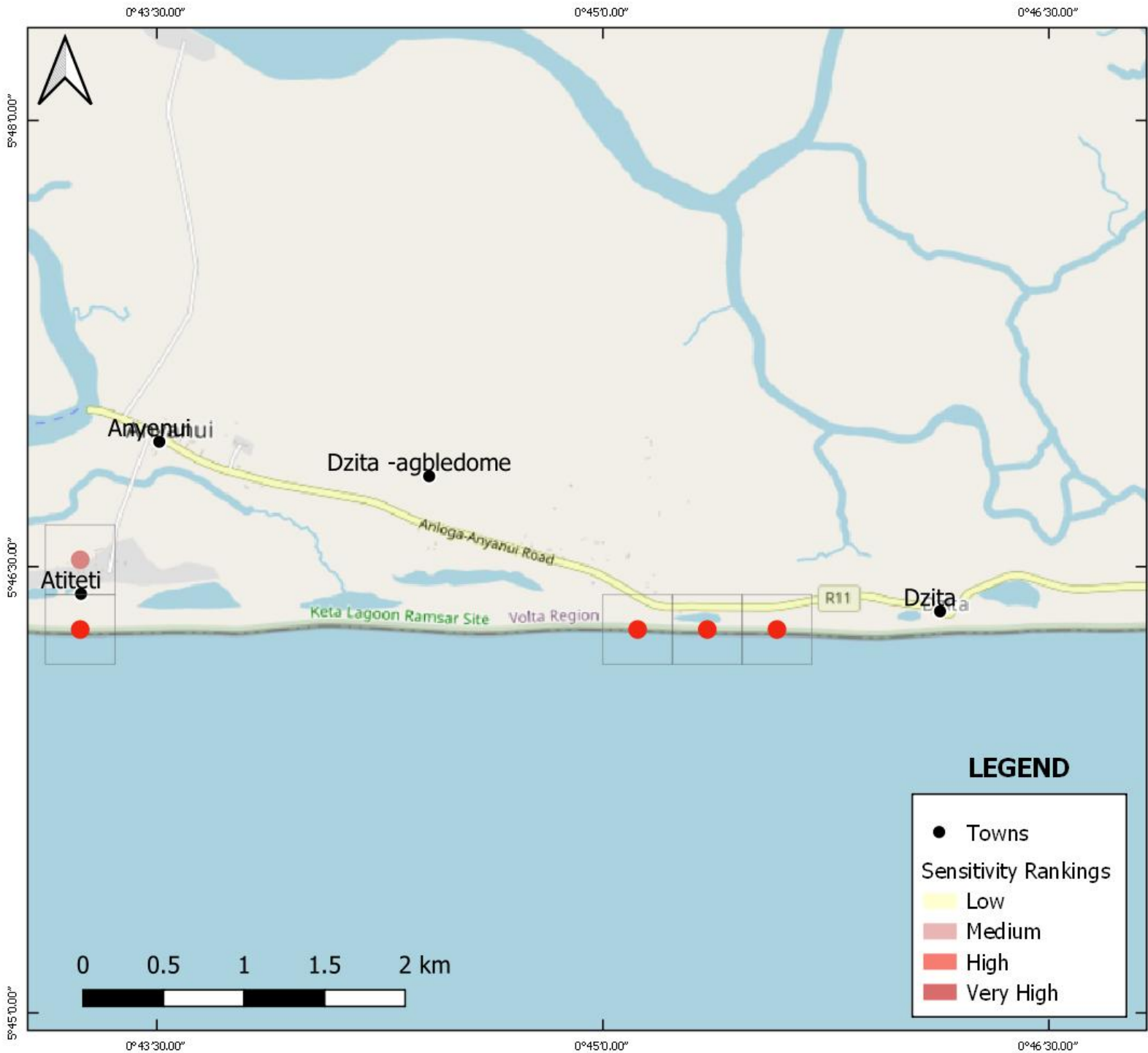
ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Turtle nesting: There are turtles nesting sites in the area.



**Socio-economic Sensitivity Atlas
Map 84**



PHYSICAL ENVIRONMENT

The beach is coarse sand.

HUMAN ACTIVITY

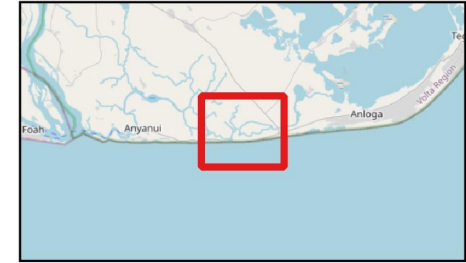
Coastal Fishery: Atiteti has two landing beaches located at Atiteti and Fuveme, respectively. The dominant fishing methods at the two landing sites are set nets. Beach seining, however, is also carried out at the Atiteti landing site. Dzita has two landing beaches located at Dzita and Agbledome. The main fishing method is purse seining.

LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



Ecological Sensitivity Atlas Map 85



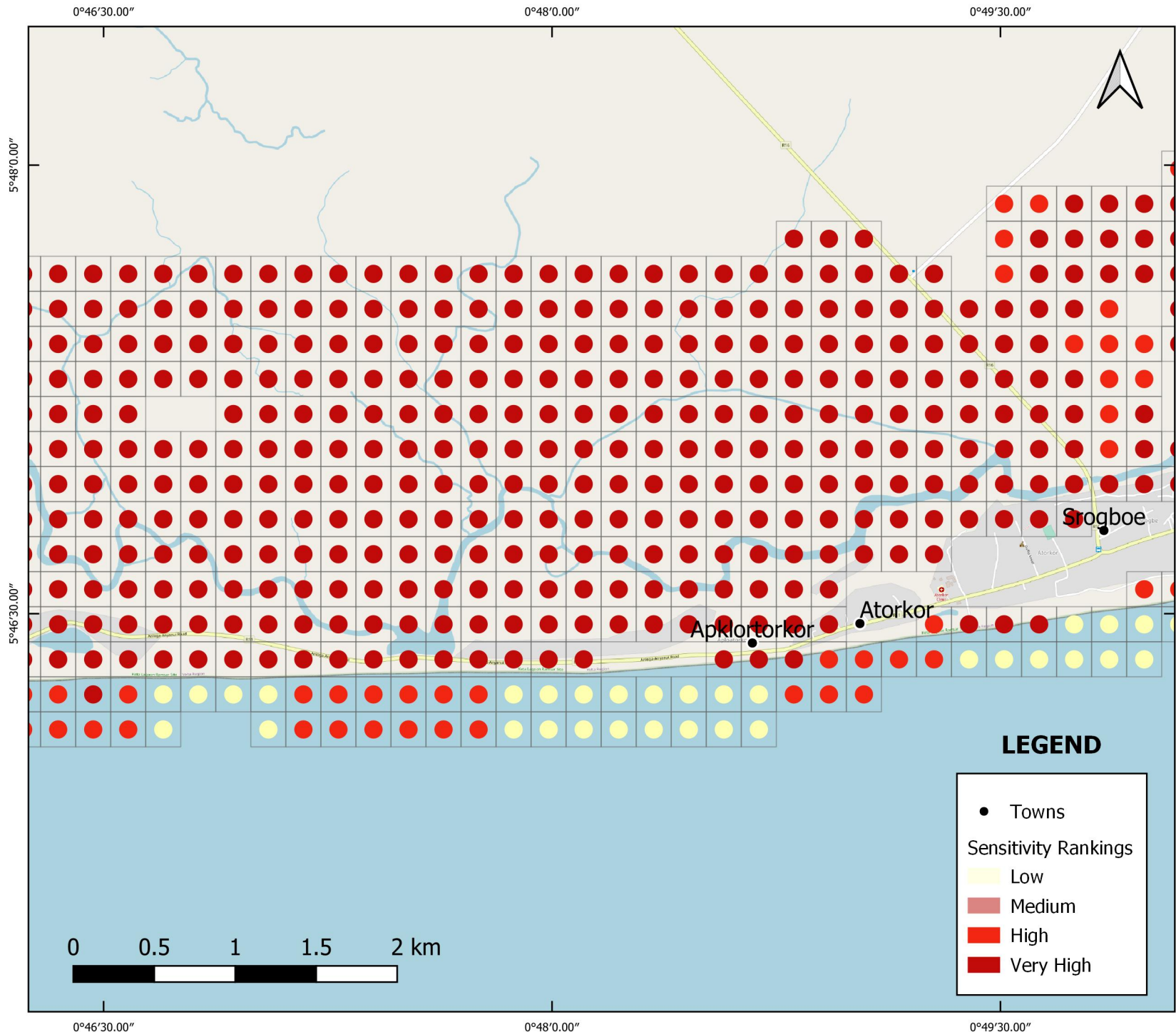
PHYSICAL ENVIRONMENT

The beach is coarse sand.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Turtle nesting: There are turtle nesting sites in the area.

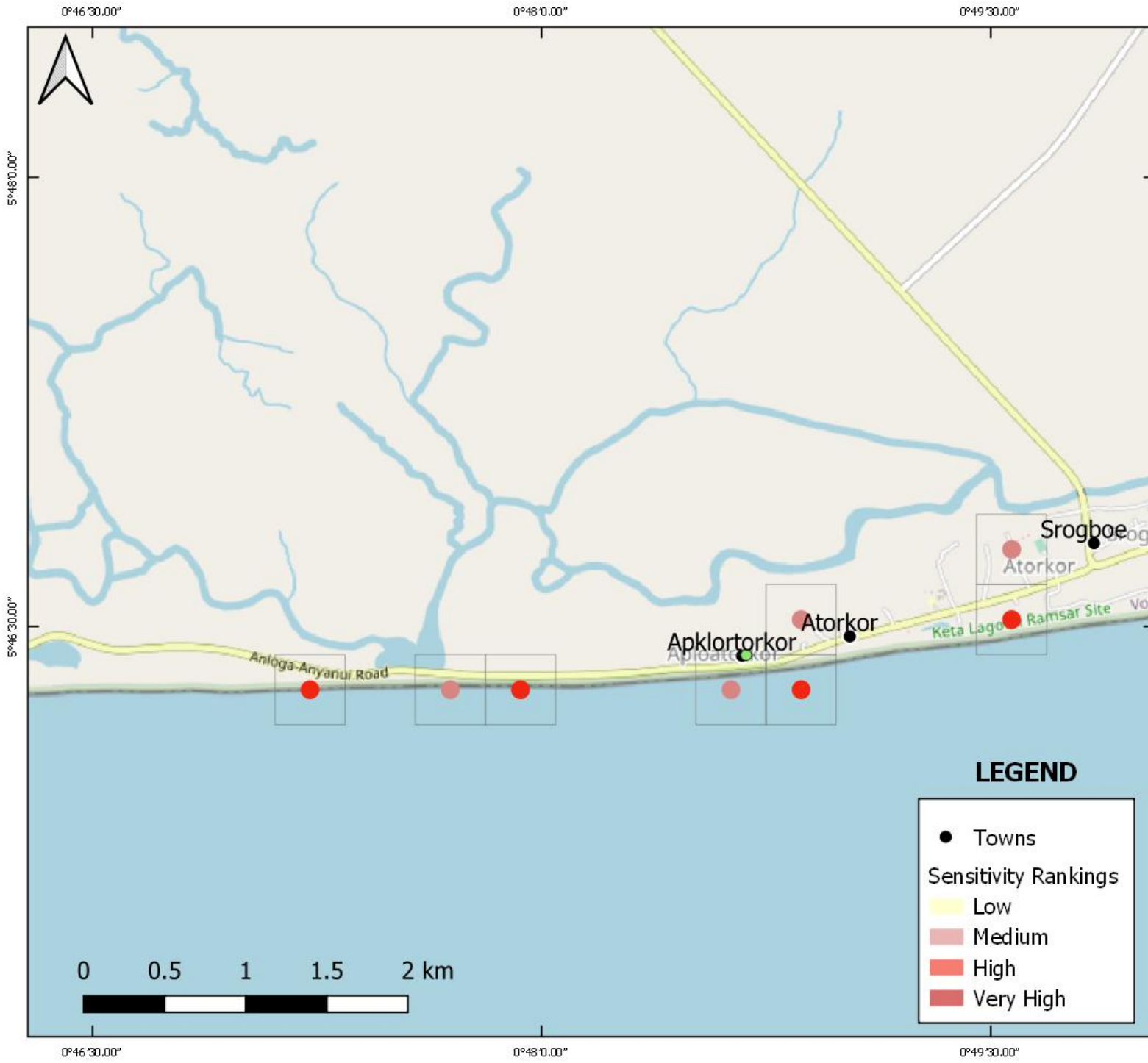


LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



**Socio-economic Sensitivity Atlas
Map 85**



PHYSICAL ENVIRONMENT

The beach is coarse sand.

HUMAN ACTIVITY

Coastal Fishery: Atorkor has two landing beaches situated at Atorkor and Dakordzi. The main fishing method is beach seining. Apklortorkor has one landing beach and the main fishing method practiced is beach seining.

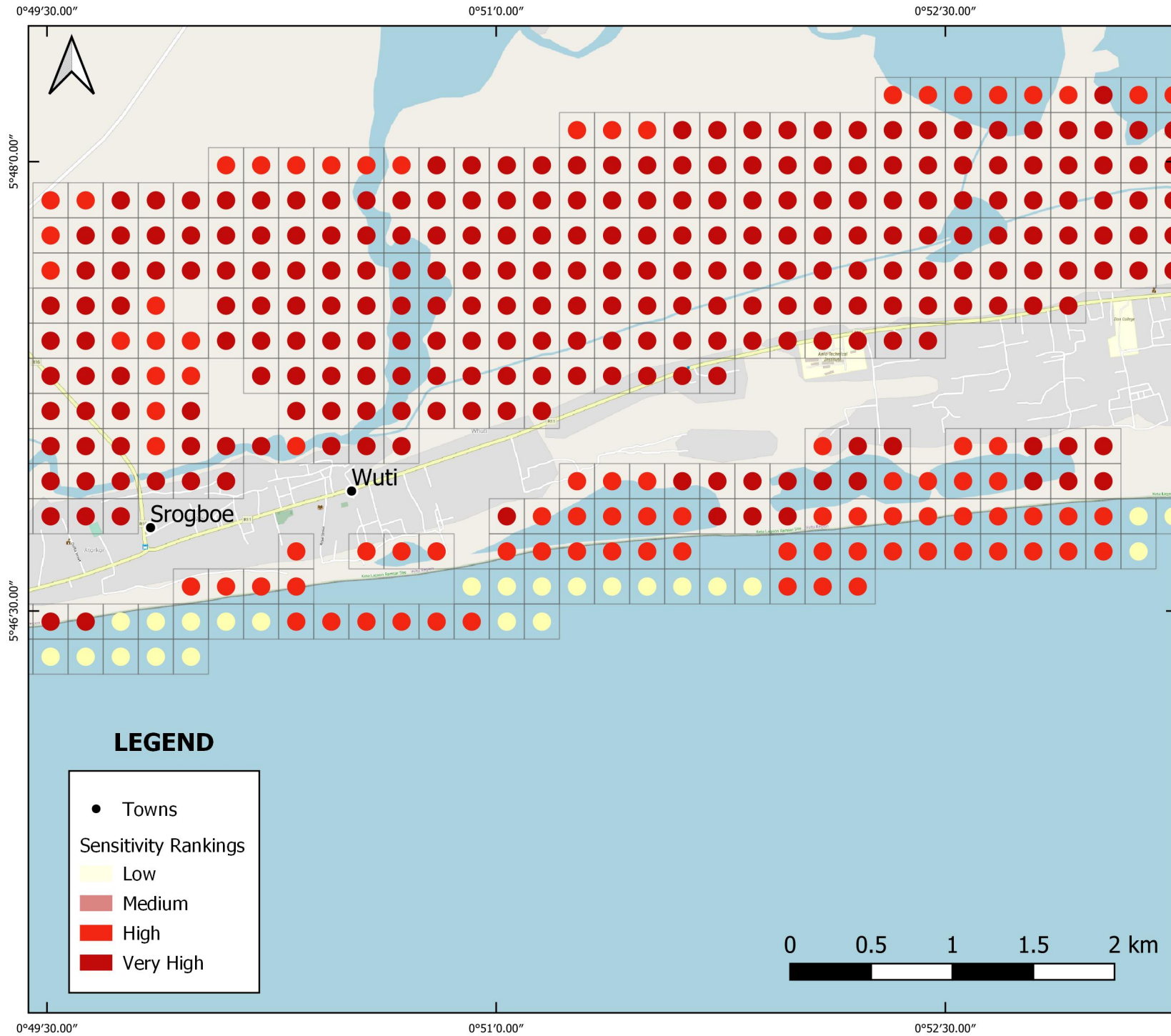
LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development programme (O4D). All Rights Reserved.

Ecological Sensitivity Atlas Map 86



PHYSICAL ENVIRONMENT

The beach is coarse sand. Keta Lagoon, found in this area covers an area of about 300km² (30,000 ha) and is permanently opened to the sea.

ECOLOGICAL ENVIRONMENT

Keta Lagoon

The lagoon is an important and vulnerable ecosystem, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Protection: Keta Lagoon was designated a Ramsar site in 1992 (Ramsar site no 567).

Vegetation: There are substantial mangrove stands in Keta Lagoon (*Rhizophora racemosa*, *Laguncularia sp* and *Rhizophora sp*). The dominant vegetation on the mud and salt flats include *Sesuvium portulacastrum*, *Paspalum vaginatum*, *Sporobolus virginicus*, *Cyperus articulatus*, *Typha domingensis*, *Ipomea-pes-capre* and *Opuntia sp*. In the southern end of the lagoon there are larger areas with submerged seagrass *Ruppia sp*.

Birds: The Keta wetland is the most important seashore bird site along the coast of Ghana. The site has all the 72 seashore bird species recorded for the Ghana coast. Previously, the estimated seashore bird population was around 110,000, but the current population is believed to be several times higher. The bird population includes several thousands of waders, terns, herons and ducks. At times, Keta alone holds 60% of the total population of waders on the Ghana coast.

The site supports internationally important populations of eight species of waders: Spotted redshank, Greenshank, Ringed plover, Curlew sandpiper, Little stint, Black-tailed godwit, Avocet and Black winged stilt. The site is important for one species of tern, Caspian tern; the entire coastal population of Caspian tern is often found on the Keta lagoon. The site contributes 90-100% of the recorded total count for ten species: Black-winged stilt, Knot, Curlew, Wood sandpiper, Caspian tern, Western reef heron, Squacco heron, Purple heron, White-faced tree duck and Garganey. Eighteen other species occur in numbers, which account for over 50% of the recorded coastal total population for the species. The abundance of birds is highest from September to April.

Fish and crustaceans: The lagoon is a nursery site for fish and crustaceans. Twelve fish species have been found in the lagoon with the black chin tilapia *Sarotherodon melanotheron* and the red chin tilapia *Tilapia guineensis* being the most dominant. Crustaceans include the blue-legged lagoon crab *Callinectes amnicola*, the prawns *Penaeus notialis*, *Penaeus kerathurus* and *Parapenaeopsis atlantica*.

Turtle nesting: There are turtle nesting sites in the area.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



0°49'30.00" 0°51'0.00" 0°52'30.00"

Socio-economic Sensitivity Atlas Map 86

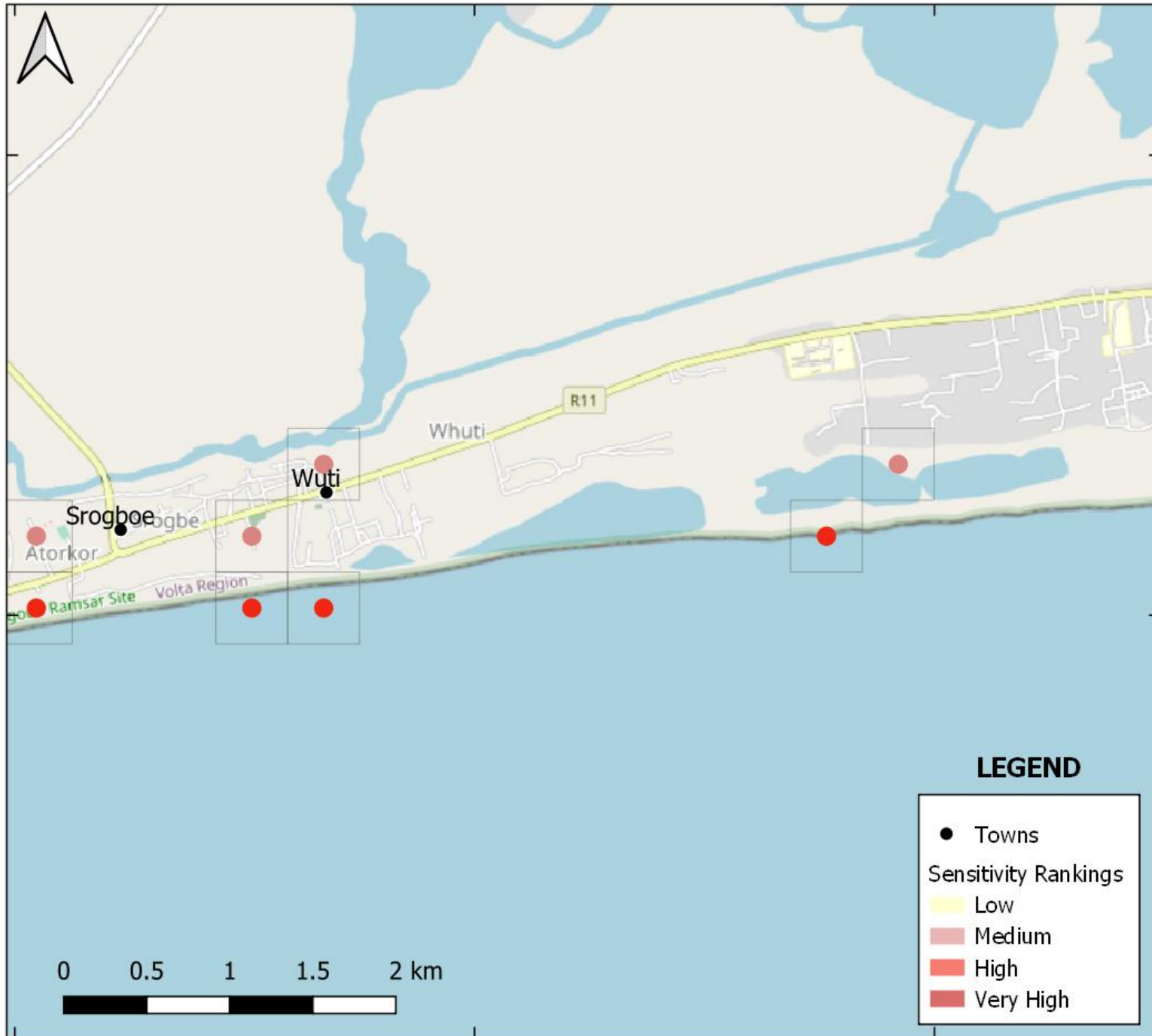


5°48'0.00"

5°48'0.00"

5°46'30.00"

5°46'30.00"



PHYSICAL ENVIRONMENT

The beach is coarse sand. Keta Lagoon, found in this area covers an area of about 300km² (30,000 ha) and is permanently opened to the sea.

HUMAN ACTIVITY

Coastal Fishery: Srongbe has one landing beach and the main fishing method used is beach seining. Whuti has one landing beach where the dominant fishing method practiced is beach seining.

Lagoon Fishery: The lagoon supports vibrant fisheries and it is a source of livelihood for many people in the area. Salt is also mined from the lagoon.

Other: There is shallot and vegetable farming on the sandbar, especially on the lagoon side.

LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High

0°49'30.00" 0°51'0.00" 0°52'30.00"



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development programme (O4D). All Rights Reserved.

Ecological Sensitivity Atlas Map 87



PHYSICAL ENVIRONMENT

The beach is coarse sand. Keta Lagoon, found in this area covers an area of about 300km² (30,000 ha) and is permanently opened to the sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity

Keta Lagoon

The lagoon is an important and vulnerable ecosystem, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Protection: Keta Lagoon was designated a Ramsar site in 1992 (Ramsar site no 567).

Vegetation: There are substantial mangrove stands in Keta Lagoon (*Rhizophora racemosa*, *Languncularia sp* and *Rhizophora sp*). The dominant vegetation on the mud and salt flats include *Sesuvium portulacastrum*, *Paspalum vaginatum*, *Sporobolus virginicus*, *Cyperus articulatus*, *Typha domingensis*, *Ipomea-pes-capre* and *Opuntia sp*. In the southern end of the lagoon there are larger areas with submerged seagrass *Ruppia sp*.

Birds: The Keta wetland is the most important seashore bird site along the coast of Ghana. The site has all the 72 seashore bird species recorded for the Ghana coast. Previously, the estimated seashore bird population was around 110,000, but the current population is believed to be several times higher. The bird population includes several thousands of waders, terns, herons and ducks. At times, Keta alone holds 60% of the total population of waders on the Ghana coast.

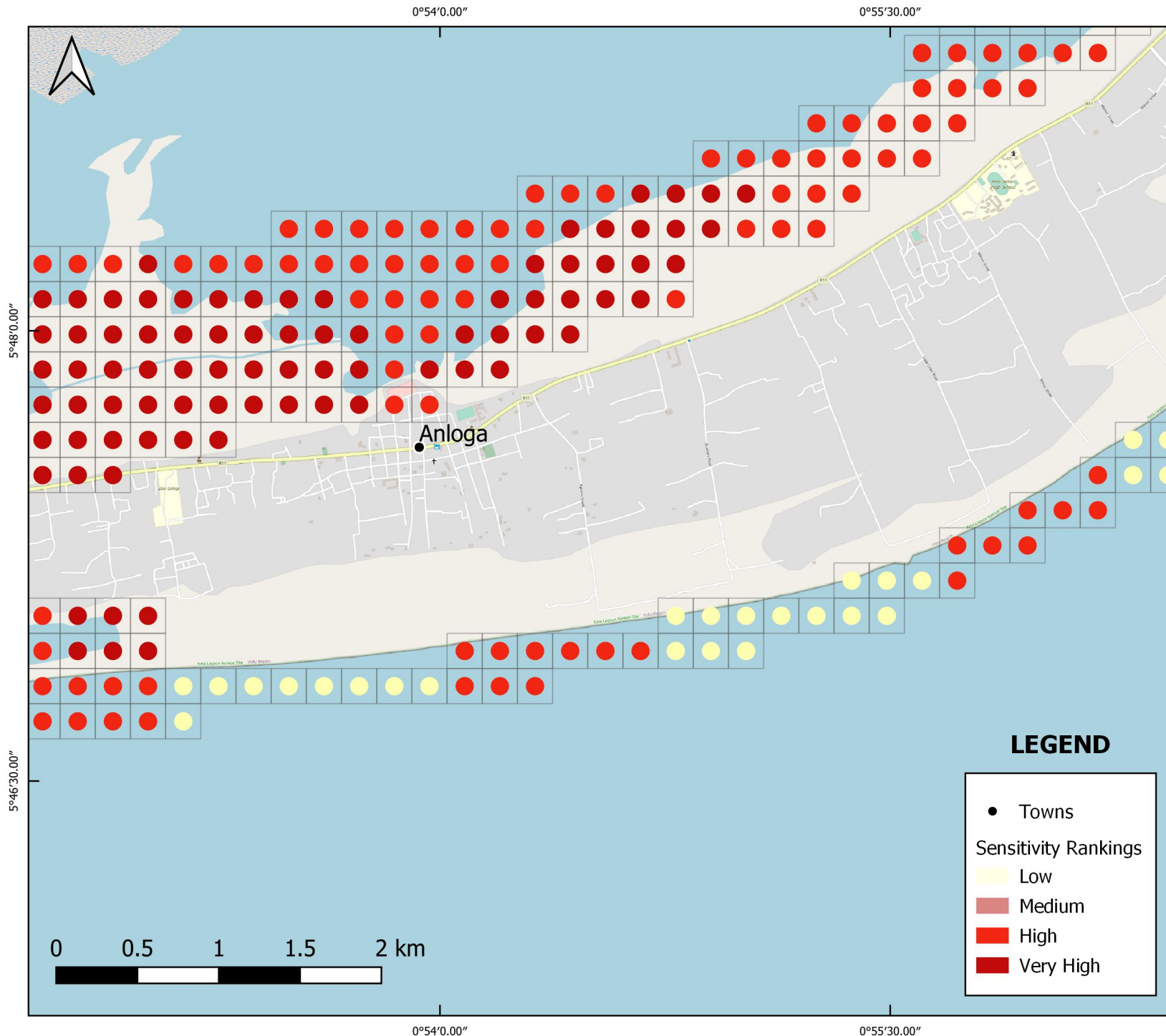
The site supports internationally important populations of eight species of waders: Spotted redshank, Greenshank, Ringed plover, Curlew sandpiper, Little stint, Black-tailed godwit, Avocet and Black winged stilt. The site is important for one species of tern, Caspian tern; the entire coastal population of Caspian tern is often found on the Keta lagoon. The site contributes 90-100% of the recorded total count for ten species: Black-winged stilt, Knot, Curlew, Wood sandpiper, Caspian tern, Western reef heron, Squacco heron, Purple heron, White-faced tree duck and Garganey. Eighteen other species occur in numbers, which account for over 50% of the recorded coastal total population for the species. The abundance of birds is highest from September to April.

Fish and crustaceans: The lagoon is a nursery site for fish and crustaceans. Twelve fish species have been found in the lagoon with the black chin tilapia *Sarotherodon melanotheron* and the red chin tilapia *Tilapia guineensis* being the most dominant. Crustaceans include the blue-legged lagoon crab *Callinectes ammicola*, the prawns *Penaeus notialis*, *Penaeus kerathurus* and *Parapenaeopsis atlantica*.

Turtle nesting: There are turtle nesting sites in the area.



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development Programme (OID). All Rights Reserved.



LEGEND

● Towns

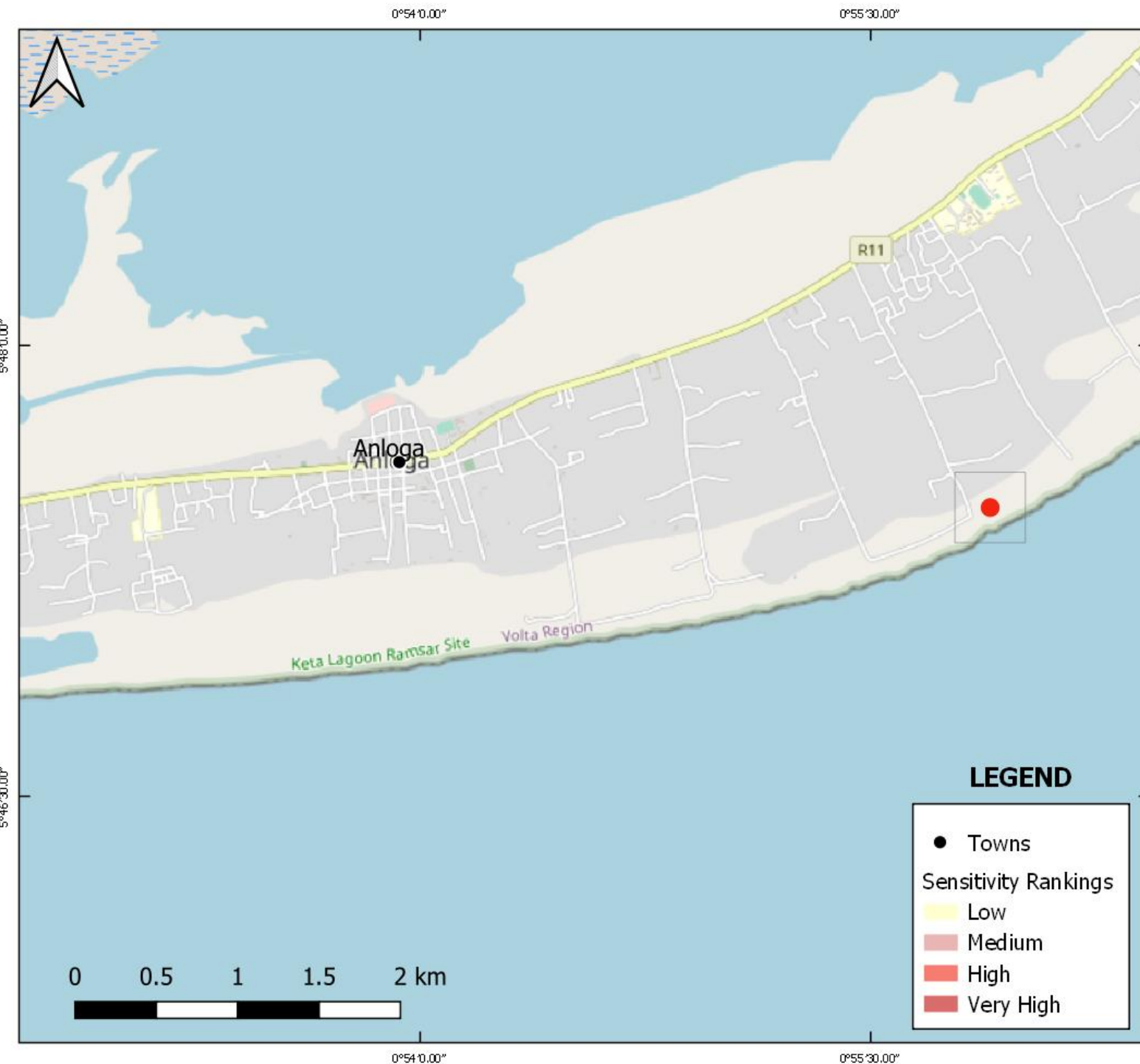
Sensitivity Rankings

● Low

● Medium

● High

● Very High



Socio-economic Sensitivity Atlas Map 87



PHYSICAL ENVIRONMENT

The beach is coarse sand. Keta Lagoon, found in this area covers an area of about 300km² (30,000 ha) and is permanently opened to the sea.

HUMAN ACTIVITY

Coastal Fishery: Anloga has two landing beaches situated at Gbogogbor and Bloluto/Atiefe. The main fishing method used is beach seining.

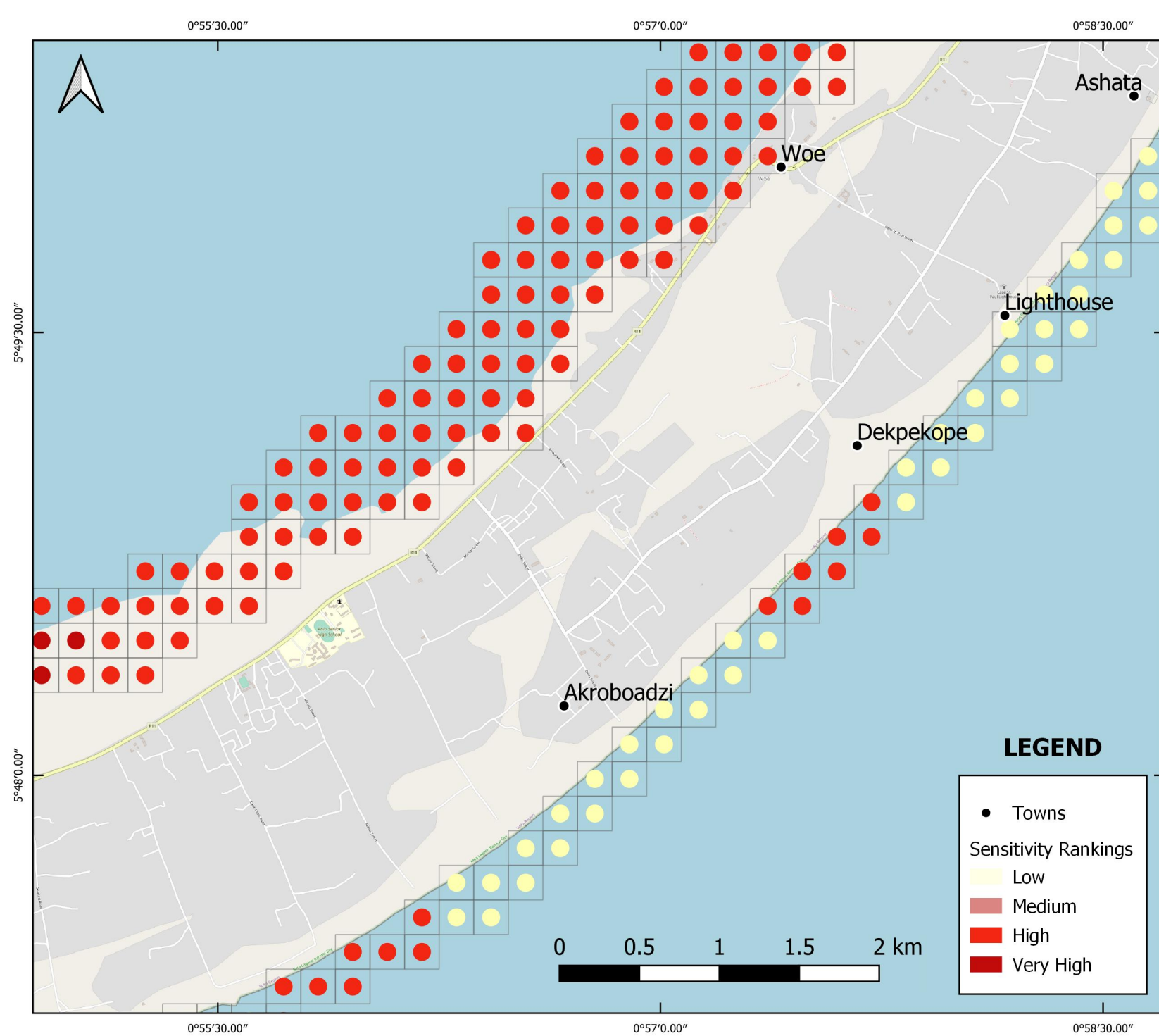
Lagoon Fishery: The lagoon supports vibrant fisheries and it is a source of livelihood for many people in the area. Salt is also mined from the lagoon.

Other: There is shallot and vegetable farming on the sandbar, especially on the lagoon side.

LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High





**Ecological Sensitivity Atlas
Map 88**



PHYSICAL ENVIRONMENT

The beach is coarse sand. Keta Lagoon, found in this area covers an area of about 300km² (30,000 ha) and is permanently opened to the sea.

ECOLOGICAL ENVIRONMENT

Keta Lagoon
The lagoon is an important and vulnerable ecosystem, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.
Protection: Keta Lagoon was designated a Ramsar site in 1992 (Ramsar site no 567).

Vegetation: There are substantial mangrove stands in Keta Lagoon (*Rhizophora racemosa*, *Languncularia sp* and *Rhizophora sp*). The dominant vegetation on the mud and salt flats include *Sessuvium portulacastrum*, *Paspalum vaginatum*, *Sporobolus virginicus*, *Cyperus articulatus*, *Typha domingensis*, *Ipomea-pes-capre* and *Opuntia sp*. In the southern end of the lagoon there are larger areas with submerged seagrass *Ruppia sp*.

Birds: The Keta wetland is the most important seashore bird site along the coast of Ghana. The site has all the 72 seashore bird species recorded for the Ghana coast. Previously, the estimated seashore bird population was around 110,000, but the current population is believed to be several times higher. The bird population includes several thousands of waders, terns, herons and ducks. At times, Keta alone holds 60% of the total population of waders on the Ghana coast.

The site supports internationally important populations of eight species of waders: Spotted redshank, Greenshank, Ringed plover, Curlew sandpiper, Little stint, Black-tailed godwit, Avocet and Black winged stilt. The site is important for one species of tern, Caspian tern, the entire coastal population of Caspian tern is often found on the Keta lagoon. The site contributes 90-100% of the recorded total count for ten species: Black-winged stilt, Knot, Curlew, Wood sandpiper, Caspian tern, Western reef heron, Squacco heron, Purple heron, White-faced tree duck and Garganey. Eighteen other species occur in numbers, which account for over 50% of the recorded coastal total population for the species. The abundance of birds is highest from September to April.

Fish and crustaceans: The lagoon is a nursery site for fish and crustaceans. Twelve fish species have been found in the lagoon with the black chin tilapia *Sarotherodon melanotheron* and the red chin tilapia *Tilapia guineensis* being the most dominant. Crustaceans include the blue-legged lagoon crab *Callinectes ammicola*, the prawns *Penaeus notialis*, *Penaeus kerathurus* and *Parapenaeopsis atlantica*.

Turtle nesting: There are turtle nesting sites in the area.

LEGEND

- Towns
- Sensitivity Rankings**
- Low
- Medium
- High
- Very High

Socio-economic Sensitivity Atlas Map 88



PHYSICAL ENVIRONMENT

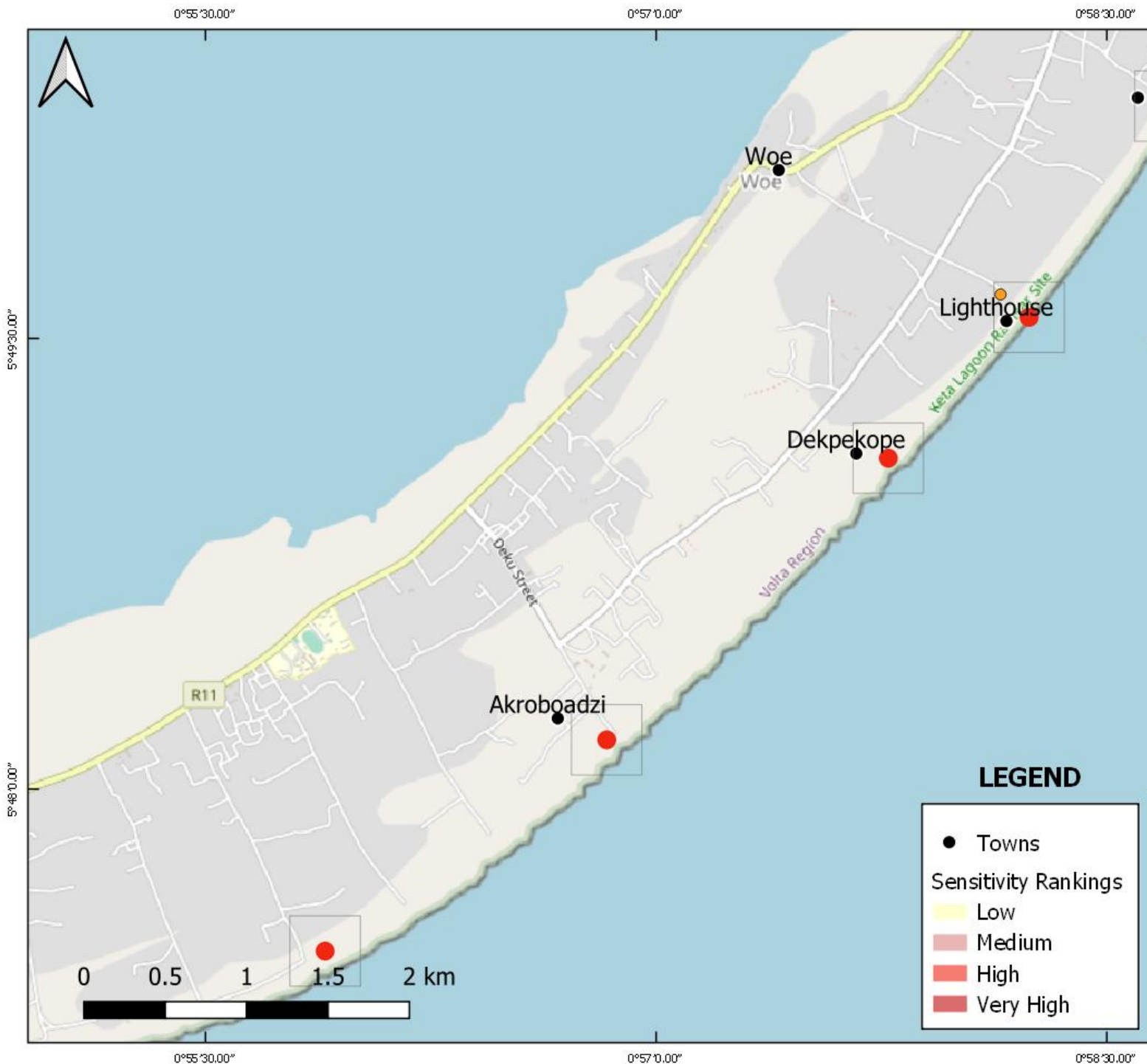
The beach is coarse sand. Keta Lagoon, found in this area covers an area of about 300km² (30,000 ha) and is permanently opened to the sea.

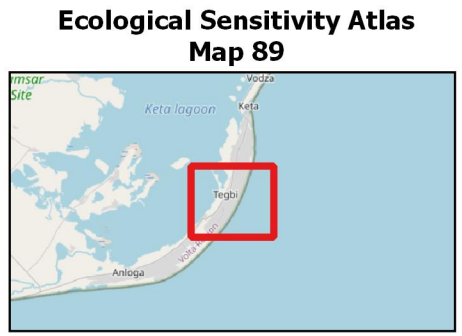
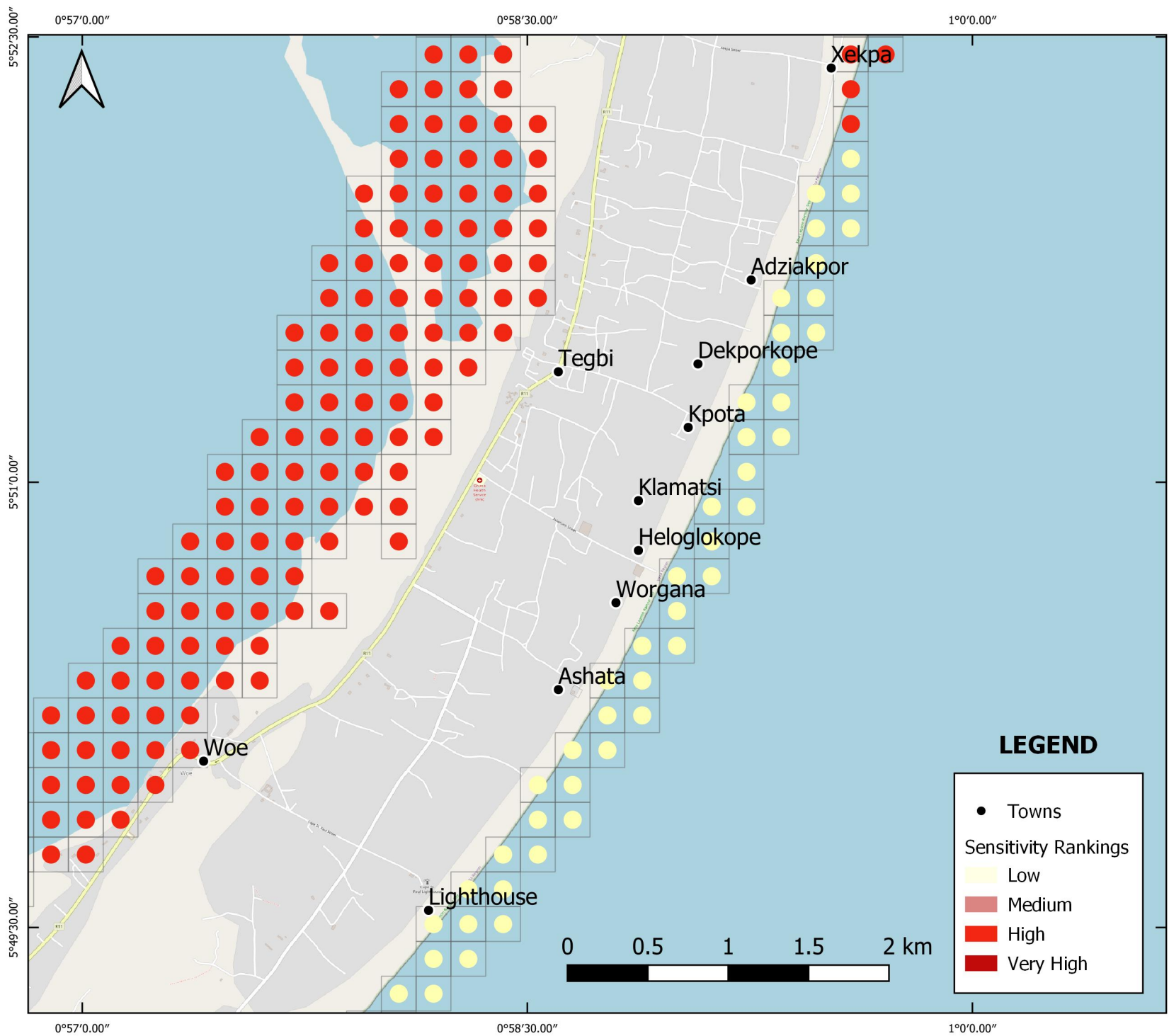
HUMAN ACTIVITY

Coastal Fishery: Woe has four landing beaches at Lighthouse, Dekpekope, Dekukope and Abiukordzi. The main fishing method is purse seining.

Lagoon Fishery: The lagoon supports vibrant fisheries and it is a source of livelihood for many people in the area. Salt is also mined from the lagoon.

Other: There is shallot and vegetable farming on the sandbar, especially on the lagoon side.





PHYSICAL ENVIRONMENT

The beach is coarse sand. Keta Lagoon, found in this area covers an area of about 300km² (30,000 ha) and is permanently opened to the sea.

ECOLOGICAL ENVIRONMENT

Keta Lagoon

The lagoon is an important and vulnerable ecosystem, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Protection: Keta Lagoon was designated a Ramsar site in 1992 (Ramsar site no 567).

Vegetation: There are substantial mangrove stands in Keta Lagoon (*Rhizophora racemosa*, *Languncularia sp* and *Rhizophora sp*). The dominant vegetation on the mud and salt flats include *Sessuvium portulacastrum*, *Paspalum vaginatum*, *Sporobolus virginicus*, *Cyperus articulatus*, *Typha domingensis*, *Ipomea-pes-capre* and *Opuntia sp*. In the southern end of the lagoon there are larger areas with submerged seagrass *Ruppia sp*.

Birds: The Keta wetland is the most important seashore bird site along the coast of Ghana. The site has all the 72 seashore bird species recorded for the Ghana coast. Previously, the estimated seashore bird population was around 110,000, but the current population is believed to be several times higher. The bird population includes several thousands of waders, terns, herons and ducks. At times, Keta alone holds 60% of the total population of waders on the Ghana coast.

The site supports internationally important populations of eight species of waders: Spotted redshank, Greenshank, Ringed plover, Curlew sandpiper, Little stint, Black-tailed godwit, Avocet and Black winged stilt. The site is important for one species of tern, Caspian tern, the entire coastal population of Caspian tern is often found on the Keta lagoon. The site contributes 90-100% of the recorded total count for ten species: Black-winged stilt, Knot, Curlew, Wood sandpiper, Caspian tern, Western reef heron, Squacco heron, Purple heron, White-faced tree duck and Garganey. Eighteen other species occur in numbers, which account for over 50% of the recorded coastal total population for the species. The abundance of birds is highest from September to April.

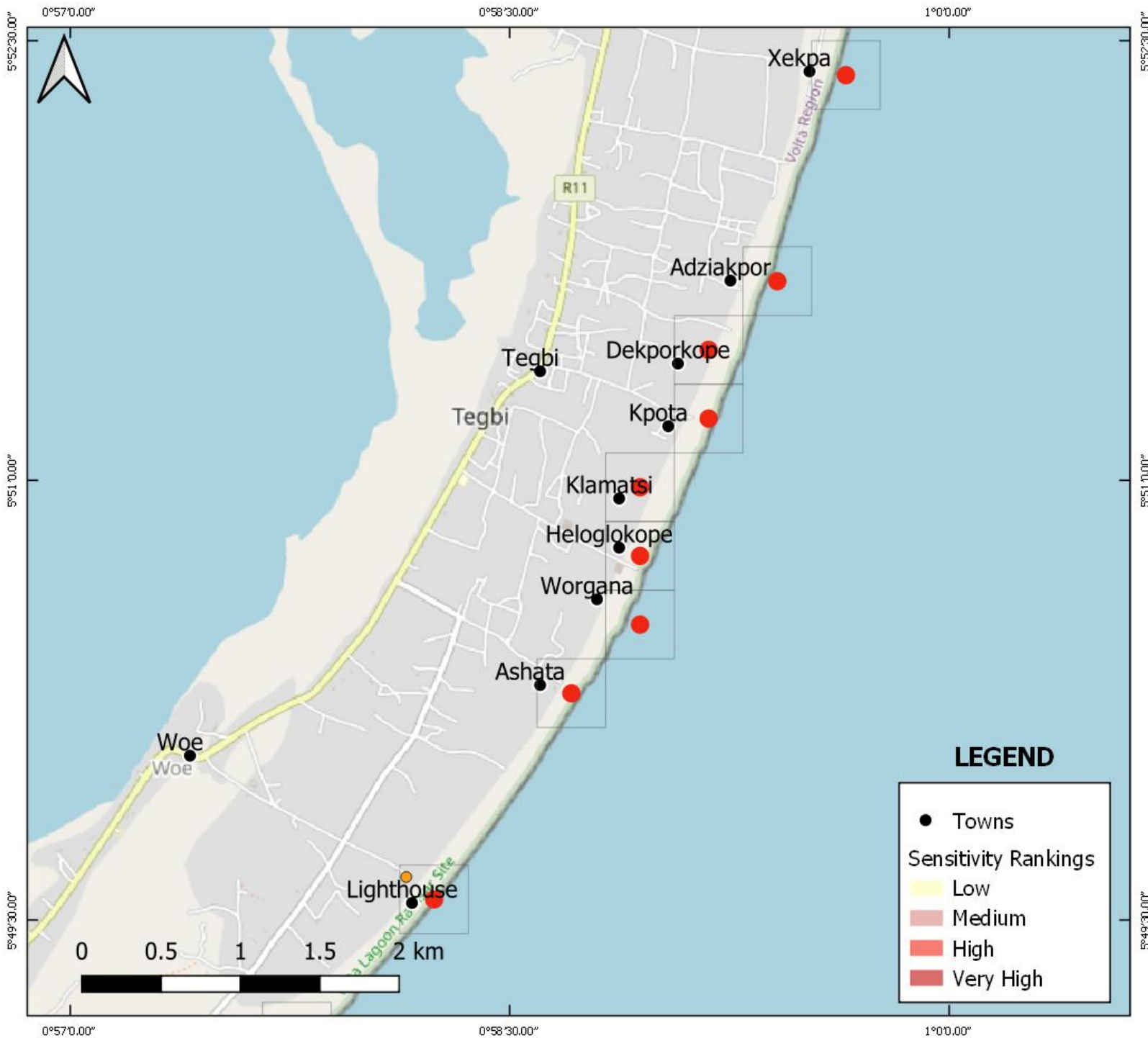
Fish and crustaceans: The lagoon is a nursery site for fish and crustaceans. Twelve fish species have been found in the lagoon with the black chin tilapia *Sarotherodon melanotheron* and the red chin tilapia *Tilapia guineensis* being the most dominant. Crustaceans include the blue-legged lagoon crab *Callinectes amnicola*, the prawns *Penaeus notialis*, *Penaeus kerathurus* and *Parapenaeopsis atlantica*.

LEGEND

- Towns

Sensitivity Rankings

- Low
- Medium
- High
- Very High



**Socio-economic Sensitivity Atlas
Map 89**



PHYSICAL ENVIRONMENT

The beach is coarse sand. Keta Lagoon, found in this area covers an area of about 300km² (30,000 ha) and is permanently opened to the sea.

HUMAN ACTIVITY

Coastal Fishery: Tegbi has eight landing beaches located at Xekpa, Adziakpor, Klogokope, Worgana, Klamatsi, Heloglokope, Agbedrafor and Ashata.

Lagoon Fishery: The lagoon supports vibrant fisheries and it is a source of livelihood for many people in the area. Salt is also mined from the lagoon.

Other: There is shallot and vegetable farming on the sandbar, especially on the lagoon side.



Ecological Sensitivity Atlas Map 90



PHYSICAL ENVIRONMENT

The beach is coarse sand. Keta Lagoon, found in this area covers an area of about 300km² (30,000 ha) and is permanently opened to the sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Keta Lagoon

The lagoon is an important and vulnerable ecosystem, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Protection: Keta Lagoon was designated a Ramsar site in 1992 (Ramsar site no 567).

Vegetation: There are substantial mangrove stands in Keta Lagoon (*Rhizophora racemosa*, *Languncularia sp* and *Rhizophora sp*). The dominant vegetation on the mud and salt flats include *Sesuvium portulacastrum*, *Paspalum vaginatum*, *Sporobolus virginicus*, *Cyperus articulatus*, *Typha domingensis*, *Ipomea-pes-capre* and *Opuntia sp*. In the southern end of the lagoon there are larger areas with submerged seagrass *Ruppia sp*.

Birds: The Keta wetland is the most important seashore bird site along the coast of Ghana. The site has all the 72 seashore bird species recorded for the Ghana coast. Previously, the estimated seashore bird population was around 110,000, but the current population is believed to be several times higher. The bird population includes several thousands of waders, terns, herons and ducks. At times, Keta alone holds 60% of the total population of waders on the Ghana coast.

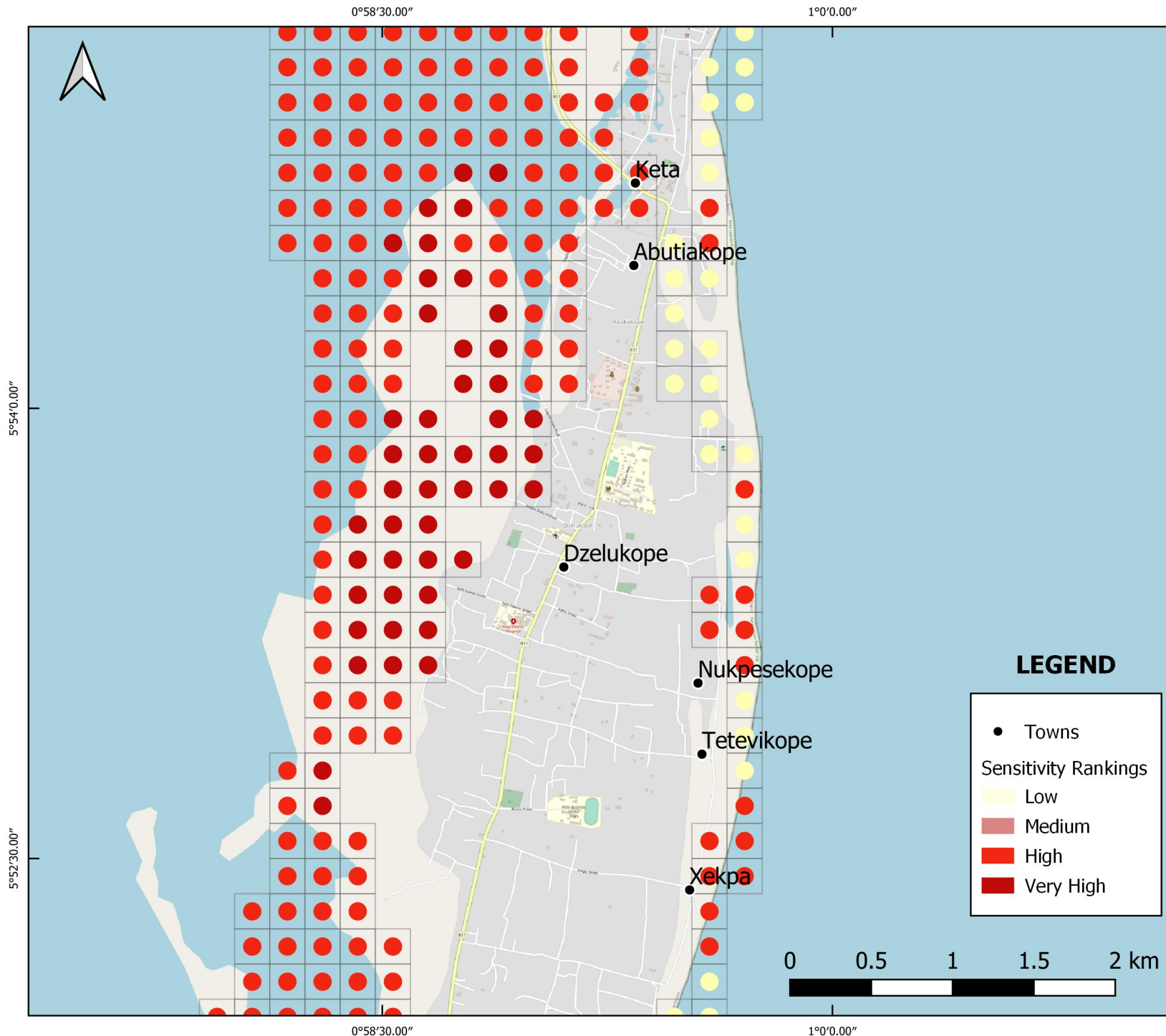
The site supports internationally important populations of eight species of waders: Spotted redshank, Greenshank, Ringed plover, Curlew sandpiper, Little stint, Black-tailed godwit, Avocet and Black winged stilt. The site is important for one species of tern, Caspian tern; the entire coastal population of Caspian tern is often found on the Keta lagoon. The site contributes 90-100% of the recorded total count for ten species: Black-winged stilt, Knot, Curlew, Wood sandpiper, Caspian tern, Western reef heron, Squacco heron, Purple heron, White-faced tree duck and Garganey. Eighteen other species occur in numbers, which account for over 50% of the recorded coastal total population for the species. The abundance of birds is highest from September to April.

Fish and crustaceans: The lagoon is a nursery site for fish and crustaceans. Twelve fish species have been found in the lagoon with the black chin tilapia *Sarotherodon melanotheron* and the red chin tilapia *Tilapia guineensis* being the most dominant. Crustaceans include the blue-legged lagoon crab *Callinectes amnicola*, the prawns *Penaeus notialis*, *Penaeus kerathurus* and *Parapenaeopsis atlantica*.

Turtle nesting: There are turtle nesting sites in the area.



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development Programme (OFD). All Rights Reserved.

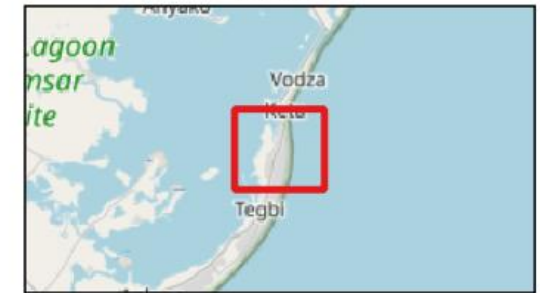


LEGEND

- Towns
- Sensitivity Rankings**
- Low
- Medium
- High
- Very High



**Socio-economic Sensitivity Atlas
Map 90**



PHYSICAL ENVIRONMENT

The beach is coarse sand. Keta Lagoon, found in this area covers an area of about 300km² (30,000 ha) and is permanently opened to the sea.

HUMAN ACTIVITY

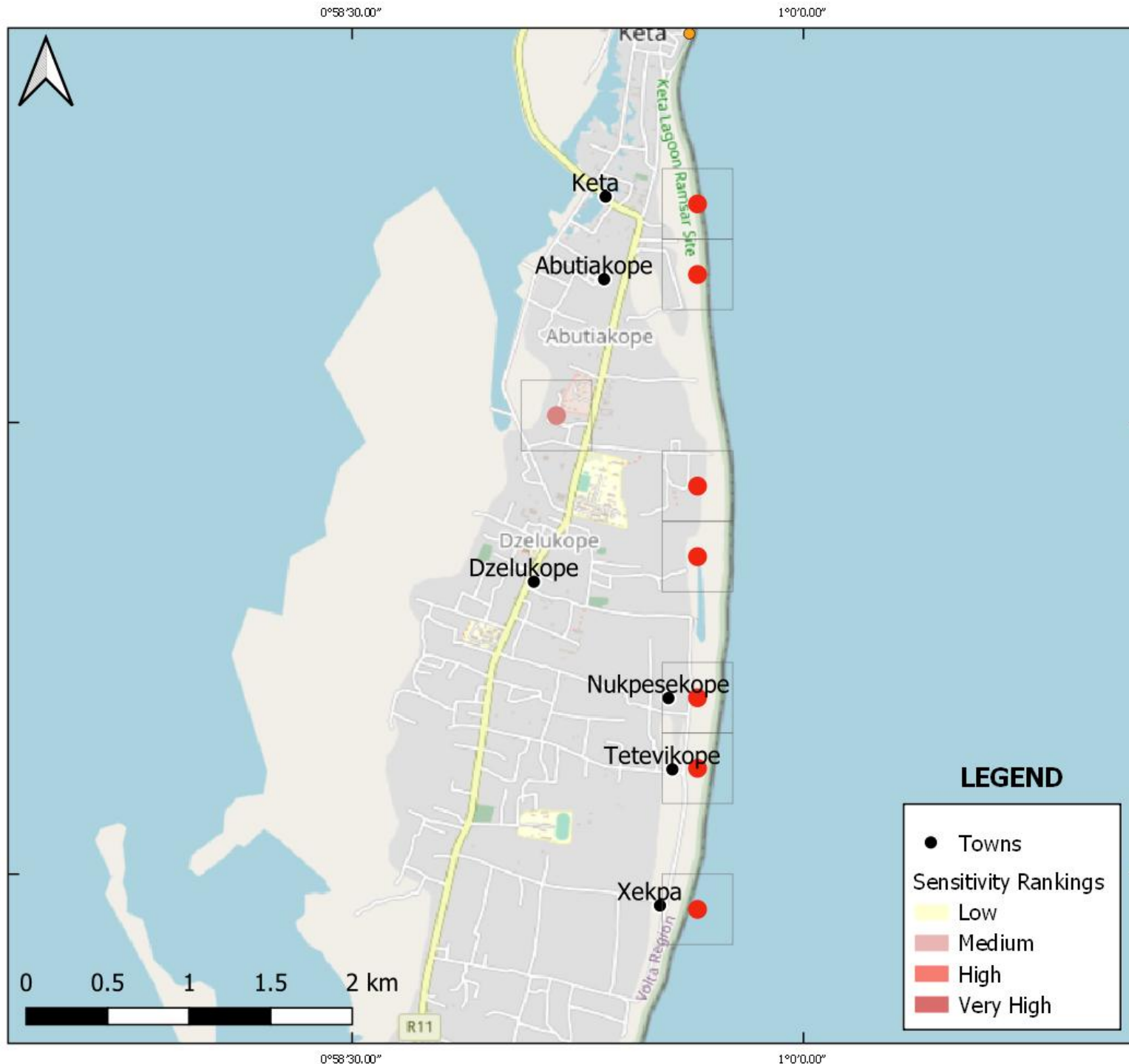
Coastal Fishery: Vui has four landing beaches located at Futa, Nukpesekope, Tetekope and Vui. The main fishing method there is beach seining.

Dzelukope has two landing beaches located at Dzelukope and Lokpodzi. The main fishing methods at Dzelukope are beach seining and purse seining.

Abutiakope has one landing beach where the main fishing methods used are purse seining, beach seining, ali nets and 'hifa nifa'. Kedzikope has one landing beach with beach seining the main fishing method being used.

Lagoon Fishery: The lagoon supports vibrant fisheries and it is a source of livelihood for many people in the area. Salt is also mined from the lagoon.

Other: There is shallot and vegetable farming on the sandbar, especially on the lagoon side.

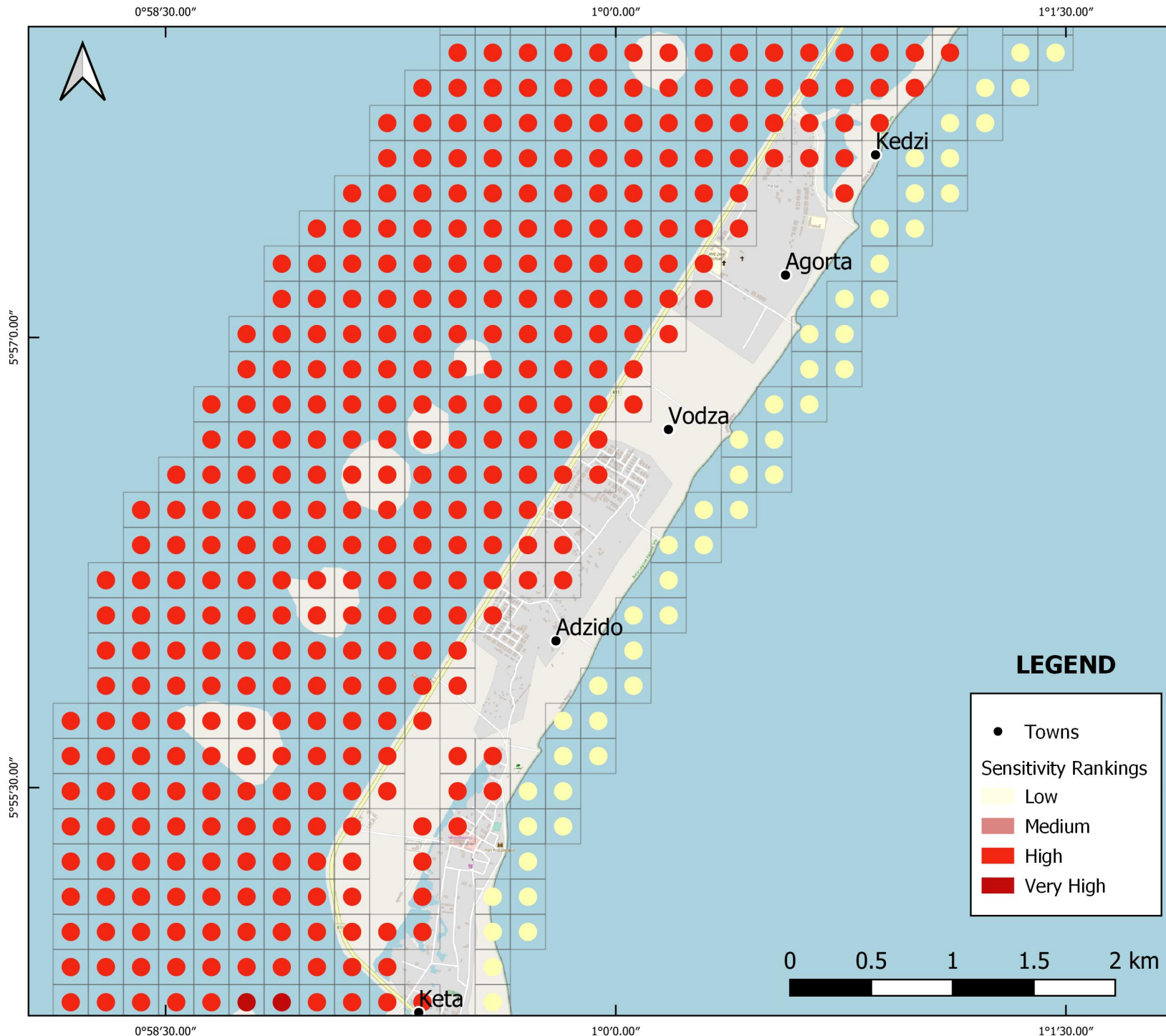
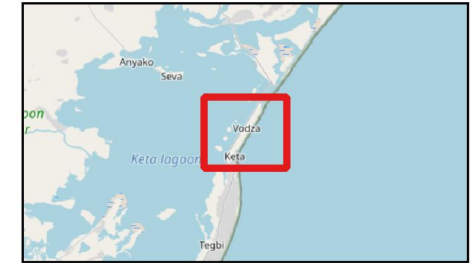


LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



Ecological Sensitivity Atlas Map 91



LEGEND

- Towns

Sensitivity Rankings

- Low
- Medium
- High
- Very High

PHYSICAL ENVIRONMENT

The beach is coarse sand. Keta Lagoon, found in this area covers an area of about 300km² (30,000 ha) and is permanently opened to the sea.

ECOLOGICAL ENVIRONMENT

Keta Lagoon

The lagoon is an important and vulnerable ecosystem, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Protection: Keta Lagoon was designated a Ramsar site in 1992 (Ramsar site no 567).

Vegetation: There are substantial mangrove stands in Keta Lagoon (*Rhizophora racemosa*, *Languncularia sp* and *Rhizophora sp*). The dominant vegetation on the mud and salt flats include *Sesuvium portulacastrum*, *Paspalum vaginatum*, *Sporobolus virginicus*, *Cyperus articulatus*, *Typha domingensis*, *Ipomea-pes-capre* and *Opuntia sp*. In the southern end of the lagoon there are larger areas with submerged seagrass *Ruppia sp*.

Birds: The Keta wetland is the most important seashore bird site along the coast of Ghana. The site has all the 72 seashore bird species recorded for the Ghana coast. Previously, the estimated seashore bird population was around 110,000, but the current population is believed to be several times higher. The bird population includes several thousands of waders, terns, herons and ducks. At times, Keta alone holds 60% of the total population of waders on the Ghana coast.

The site supports internationally important populations of eight species of waders: Spotted redshank, Greenshank, Ringed plover, Curlew sandpiper, Little stint, Black-tailed godwit, Avocet and Black winged stilt. The site is important for one species of tern, Caspian tern, the entire coastal population of Caspian tern is often found on the Keta lagoon. The site contributes 90-100% of the recorded total count for ten species: Black-winged stilt, Knot, Curlew, Wood sandpiper, Caspian tern, Western reef heron, Squacco heron, Purple heron, White-faced tree duck and Garganey. Eighteen other species occur in numbers, which account for over 50% of the recorded coastal total population for the species. The abundance of birds is highest from September to April.

Fish and crustaceans: The lagoon is a nursery site for fish and crustaceans. Twelve fish species have been found in the lagoon with the black chin tilapia *Sarotherodon melanotheron* and the red chin tilapia *Tilapia guineensis* being the most dominant. Crustaceans include the blue-legged lagoon crab *Callinectes ammicola*, the prawns *Penaeus notialis*, *Penaeus kerathurus* and *Parapenaeopsis atlantica*.



**Socio-economic Sensitivity Atlas
Map 91**



PHYSICAL ENVIRONMENT

The beach is coarse sand. Keta Lagoon, found in this area covers an area of about 300km² (30,000 ha) and is permanently opened to the sea.

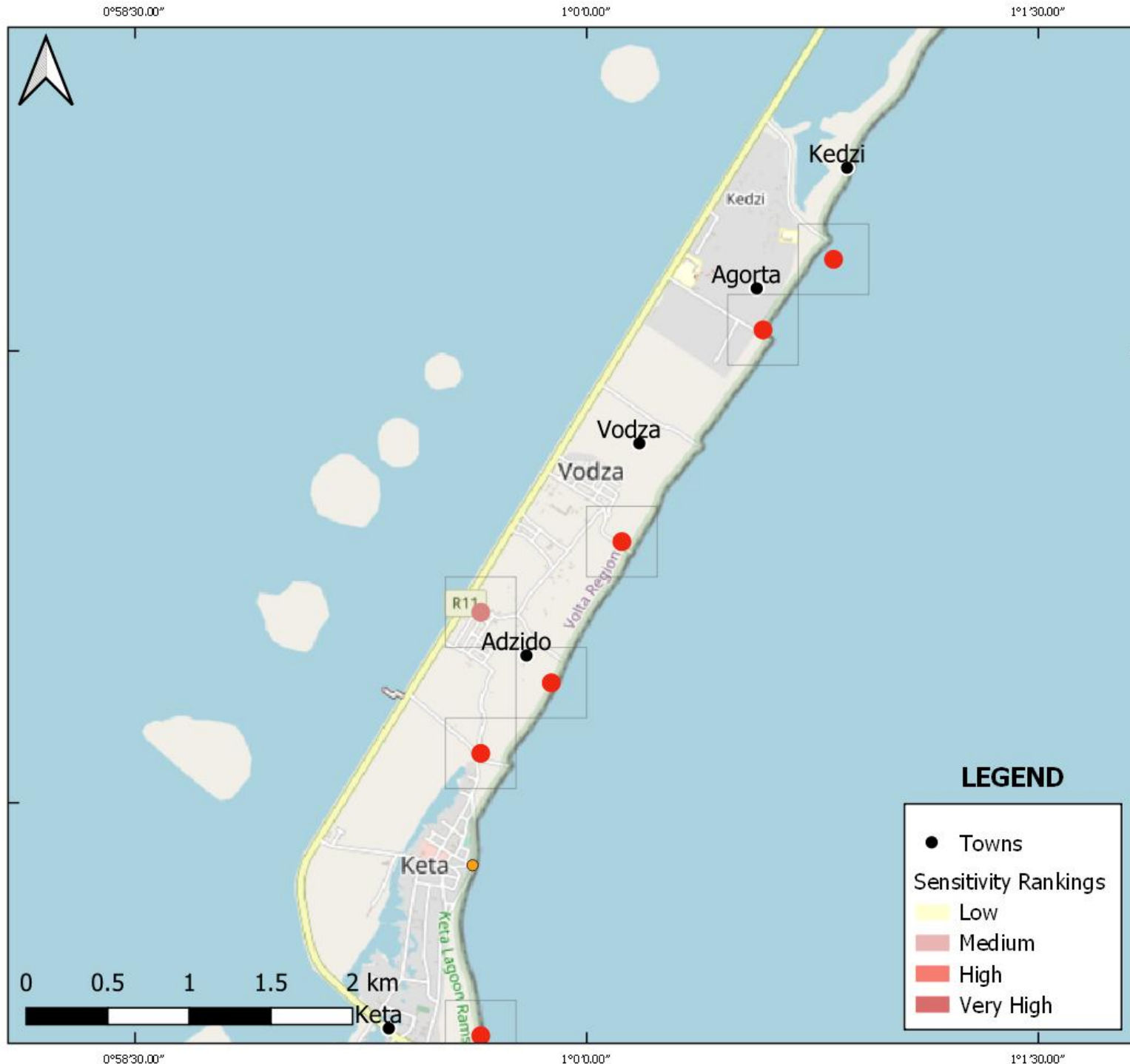
HUMAN ACTIVITY

Coastal Fishery: Adzido has one landing beach where purse seining and line fishing are the predominant methods of fishing. Vodza has one landing beach with purse seining being the main method of fishing. Kedzi has one landing beach at Tagborkope where the fishing methods used are purse seining, beach seining and ali nets.

Lagoon Fishery: The lagoon supports vibrant fisheries and it is a source of livelihood for many people in the area. Salt is also mined from the lagoon.

Recreation/tourism: There is an old fort in the area. It is fort Prinsensteen, built by the Danes in 1784. Today it is essentially a ruin, a larger part of the fort being destroyed in a storm in 1980. There are hotels at the waterfront in Keta.

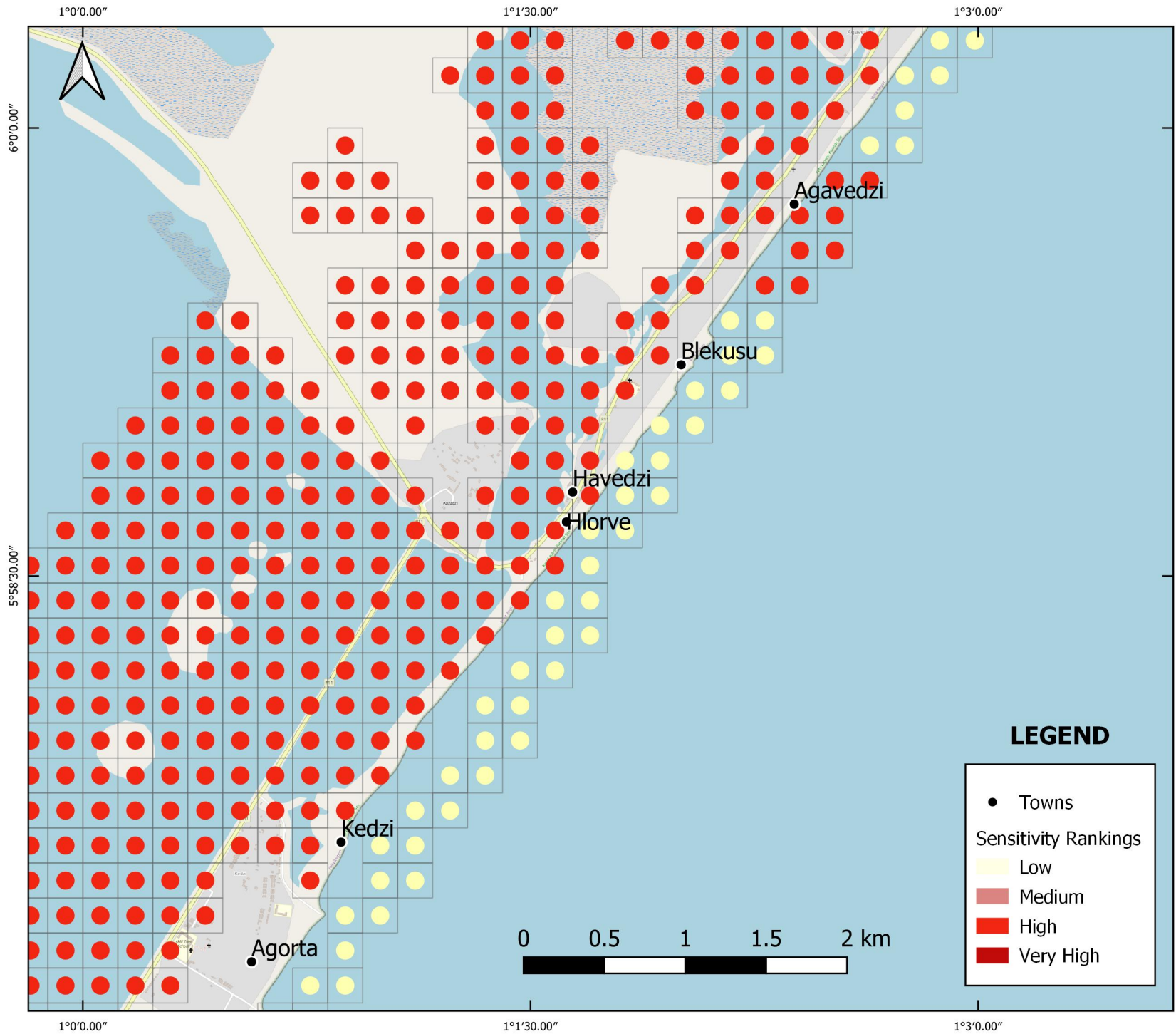
Other: There is shallot and vegetable farming on the sandbar, especially on the lagoon side.



LEGEND

- Towns
- Sensitivity Rankings**
- Low
- Medium
- High
- Very High

Ecological Sensitivity Atlas Map 92



LEGEND

- Towns

Sensitivity Rankings

- Low
- Medium
- High
- Very High

PHYSICAL ENVIRONMENT

The beach is coarse sand. Keta Lagoon, found in this area covers an area of about 300km² (30,000 ha) and is permanently opened to the sea.

ECOLOGICAL ENVIRONMENT

Keta Lagoon

The lagoon is an important and vulnerable ecosystem, housing a wide variety of fish, shrimps, crabs and mollusc species. They are important nursery areas for juveniles of marine fish and shrimps.

Protection: Keta Lagoon was designated a Ramsar site in 1992 (Ramsar site no 567).

Vegetation: There are substantial mangrove stands in Keta Lagoon (*Rhizophora racemosa*, *Languncularia sp* and *Rhizophora sp*). The dominant vegetation on the mud and salt flats include *Sesuvium portulacastrum*, *Paspalum vaginatum*, *Sporobolus virginicus*, *Cyperus articulatus*, *Typha domingensis*, *Ipomea-pes-capre* and *Opuntia sp*. In the southern end of the lagoon there are larger areas with submerged seagrass *Ruppia sp*.

Birds: The Keta wetland is the most important seashore bird site along the coast of Ghana. The site has all the 72 seashore bird species recorded for the Ghana coast. Previously, the estimated seashore bird population was around 110,000, but the current population is believed to be several times higher. The bird population includes several thousands of waders, terns, herons and ducks. At times, Keta alone holds 60% of the total population of waders on the Ghana coast.

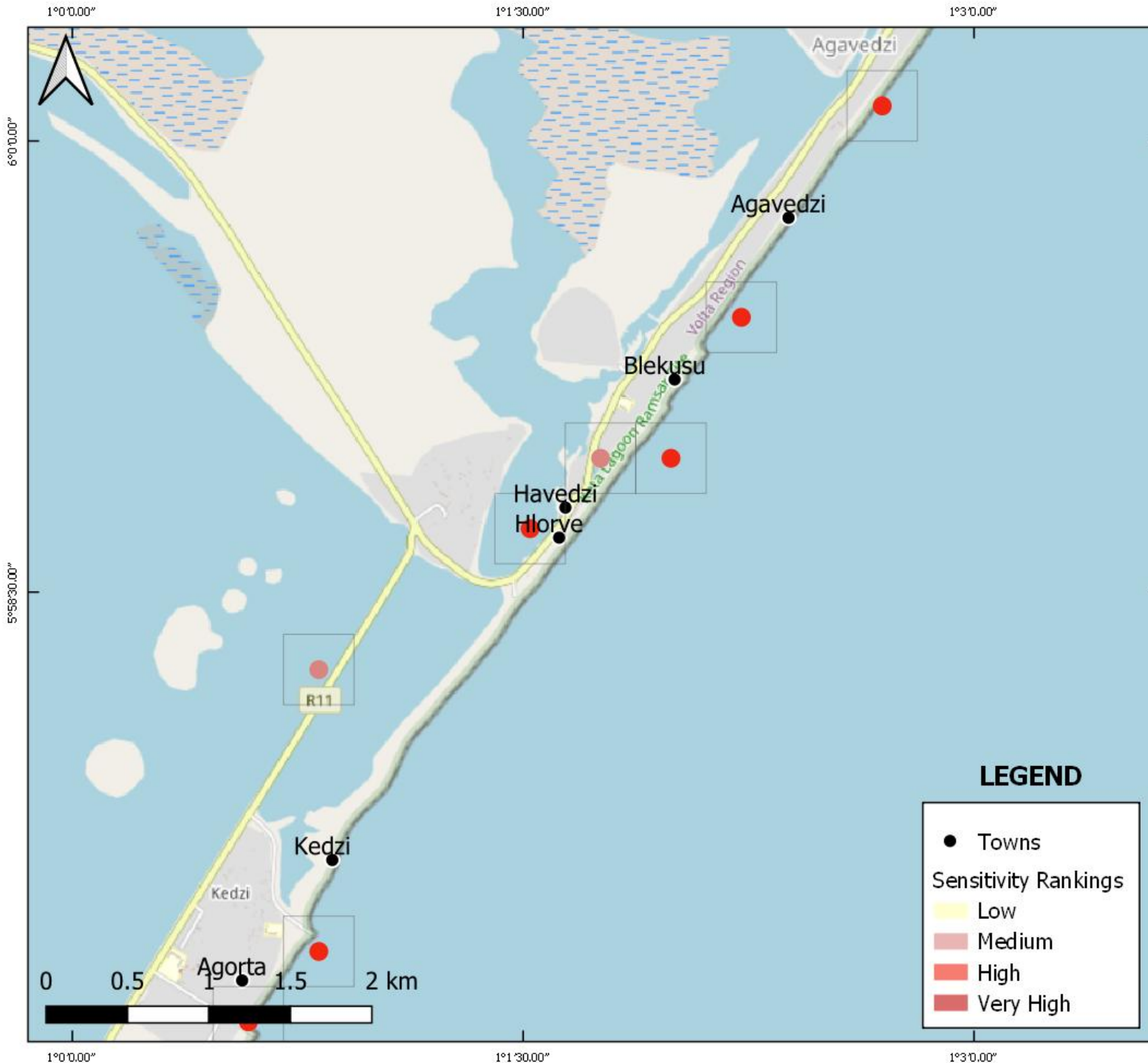
The site supports internationally important populations of eight species of waders: Spotted redshank, Greenshank, Ringed plover, Curlew sandpiper, Little stint, Black-tailed godwit, Avocet and Black winged stilt. The site is important for one species of tern, Caspian tern, the entire coastal population of Caspian tern is often found on the Keta lagoon. The site contributes 90-100% of the recorded total count for ten species: Black-winged stilt, Knot, Curlew, Wood sandpiper, Caspian tern, Western reef heron, Squacco heron, Purple heron, White-faced tree duck and Garganey. Eighteen other species occur in numbers, which account for over 50% of the recorded coastal total population for the species. The abundance of birds is highest from September to April.

Fish and crustaceans: The lagoon is a nursery site for fish and crustaceans. Twelve fish species have been found in the lagoon with the black chin tilapia *Sarotherodon melanotheron* and the red chin tilapia *Tilapia guineensis* being the most dominant. Crustaceans include the blue-legged lagoon crab *Callinectes amnicola*, the prawns *Penaeus notialis*, *Penaeus kerathurus* and *Parapenaeopsis atlantica*.

Turtle nesting: There are turtle nesting sites in the area.



**Socio-economic Sensitivity Atlas
Map 92**



PHYSICAL ENVIRONMENT

The beach is coarse sand. Keta Lagoon, found in this area covers an area of about 300km² (30,000 ha) and is permanently opened to the sea.

HUMAN ACTIVITY

Coastal Fishery: Kedzi has one landing beach at Tagborkope where the fishing methods used are purse seining, beach seining and all nets.

Hlorve has one landing beach where the main fishing method is beach seining. Blekusu has one landing beach and the main fishing method is beach seining.

Agavedzi has one landing beach. The main fishing method practiced is beach seining.

Lagoon Fishery: The lagoon supports vibrant fisheries and it is a source of livelihood for many people in the area. Salt is also mined from the lagoon.

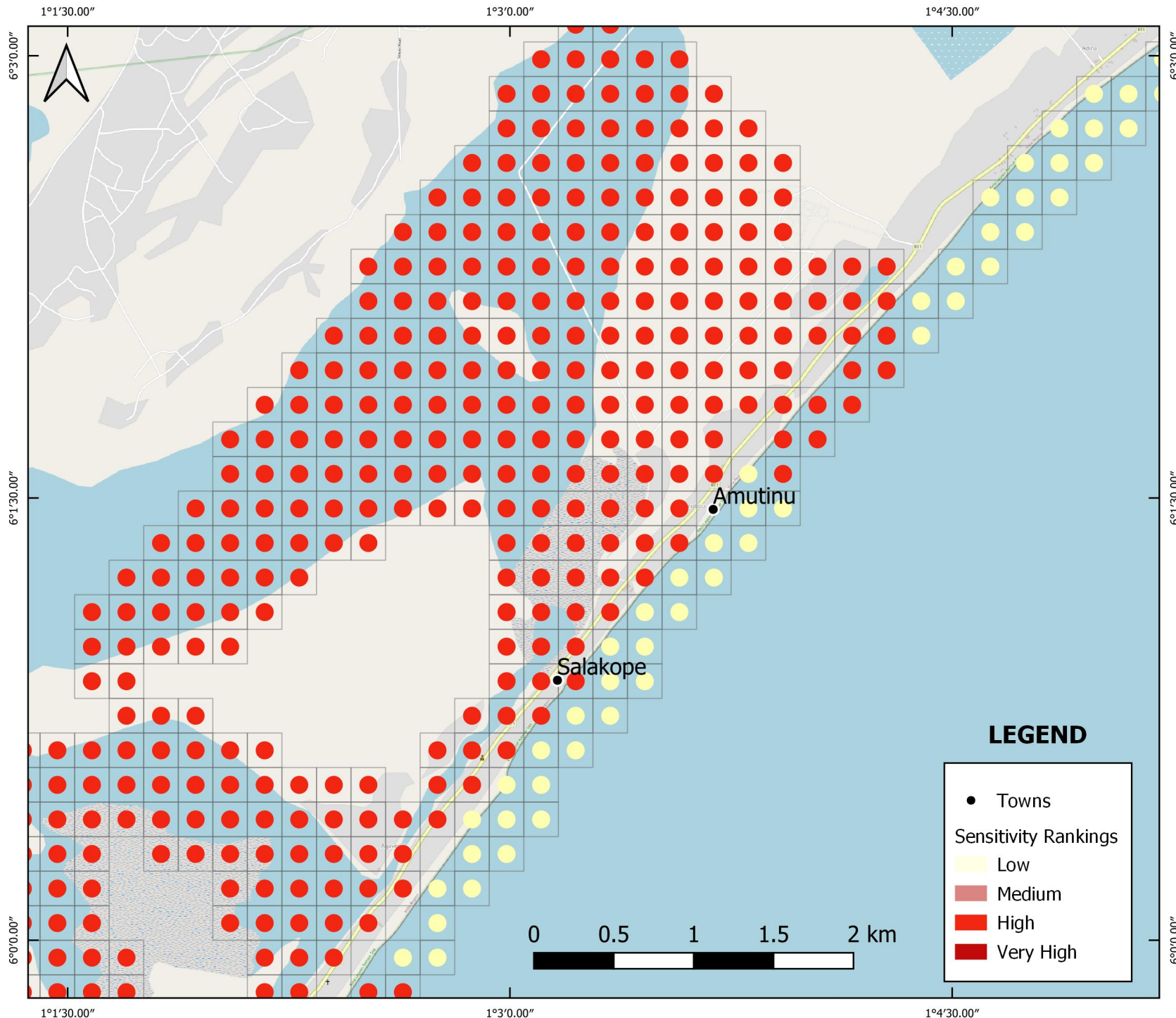
Other: There is shallot and vegetable farming on the sandbar, especially on the lagoon side.

LEGEND

- Towns
- Sensitivity Rankings**
- Low
- Medium
- High
- Very High



Ecological Sensitivity Atlas Map 93



PHYSICAL ENVIRONMENT

The beach is coarse sand. Denu Lagoon is found in the area. It is a closed lagoon and will therefore not be affected by an oil spill at sea.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Denu Lagoon

Vegetation: The dominant vegetation on the mud and salt flats include *Sesuvium portulacastrum*, *Paspalum vaginatum*, *Sporobolus virginicus*, *Cyperus articulatus*, *Typha domingensis*, *Ipomea-pes-capre* and *Opuntia sp.* Towards the north eastern end are white mangrove *Avecinnia africana* and *Laguncularia* while towards the more fresh water areas westwards from Dabala to Anyanui there are extensive cover of *Rhizophora*. In the southern end of the lagoon there are larger areas with submerged seagrass *Ruppia sp.*

Birds: The marshy areas around the lagoon serves as a roosting area for water birds, especially the western end of the Lagoon is an important habitat for water birds such as pelicans, Reef heron and Black-winged stilt.

Turtle nesting: There are turtles nesting sites in the area.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



Socio-economic Sensitivity Atlas Map 93



PHYSICAL ENVIRONMENT

The beach is coarse sand. Denu Lagoon is found in the area. It is a closed lagoon and will therefore not be affected by an oil spill at sea.

HUMAN ACTIVITY

Coastal Fishery: Salakope has one landing beach and the main fishing method being practiced there is beach seining. Amutinu has one landing beach where the main fishing method is beach seining.

Adina has one landing beach. The main fishing methods are beach seining and purse seining.

Lagoon Fishery: Fishing for crustaceans and fish is carried out in the lagoon.

Industrial/Domestic utilization: Salt is mined in the lagoon during the dry season.

Other: There is shallot and vegetable farming on the sandbar, especially on the lagoon side.

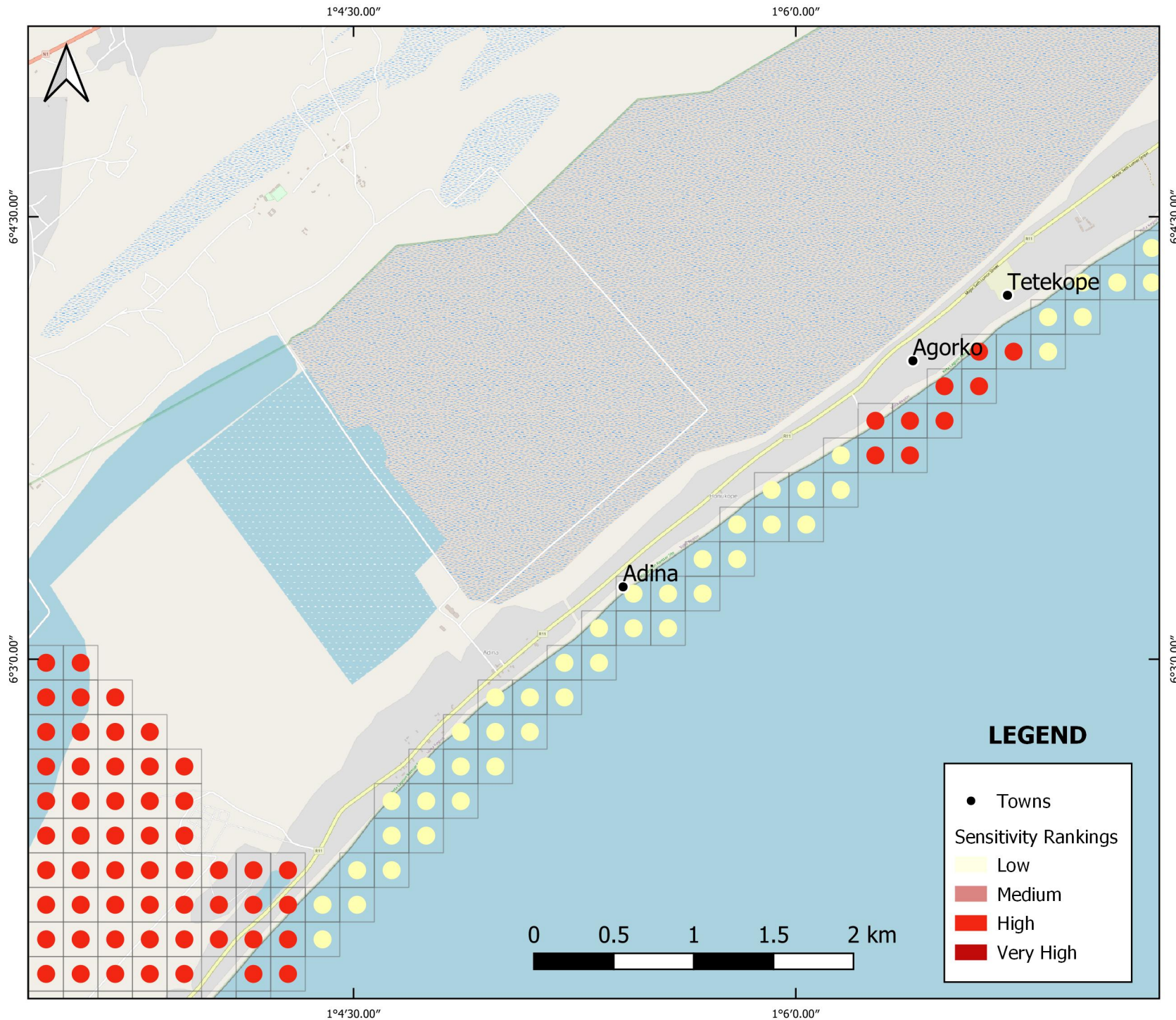
LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



Produced by the EPA GIS Unit in collaboration with the Norwegian Environment Agency and the UNEP-WCMC under NORAD Oil for Development programme (O4D). All Rights Reserved.

Ecological Sensitivity Atlas Map 94



PHYSICAL ENVIRONMENT

The beach is coarse sand.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

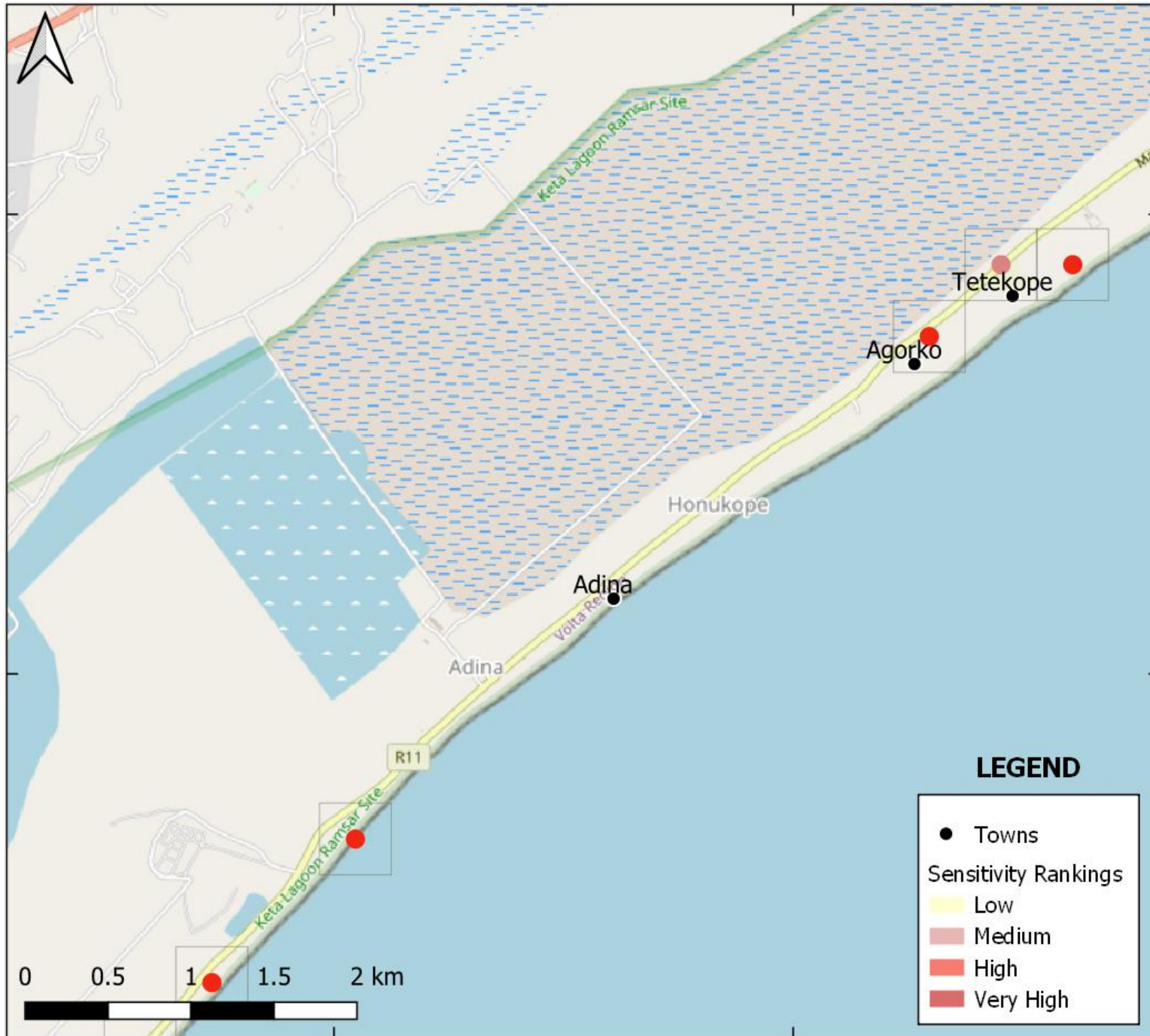
Turtle nesting: There are turtle nesting sites in the area.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High



**Socio-economic Sensitivity Atlas
Map 94**



PHYSICAL ENVIRONMENT

The beach is coarse sand.

HUMAN ACTIVITY

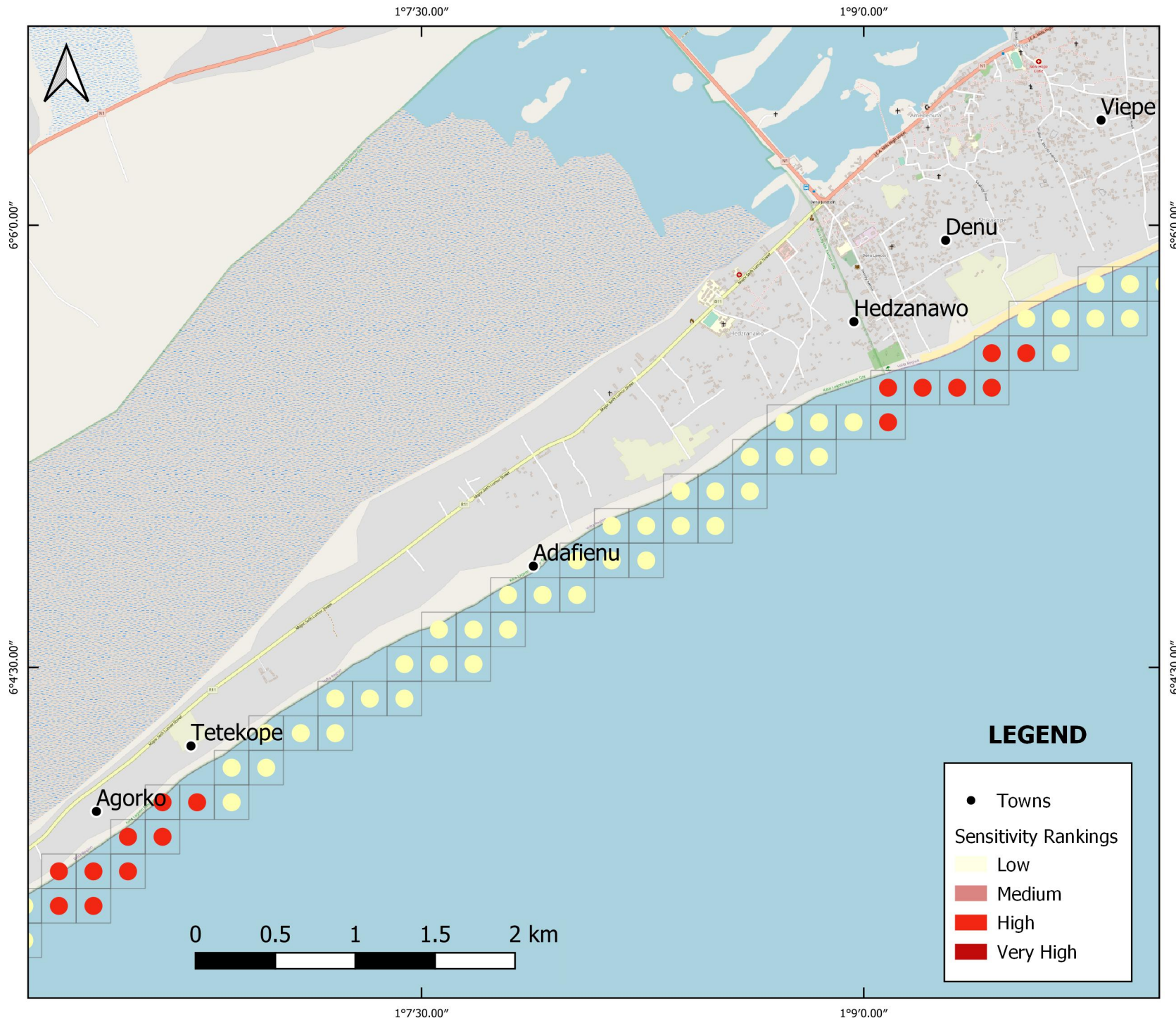
Coastal Fishery: Adina has one landing beach. The main fishing methods are beach seining and purse seining.

LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



Ecological Sensitivity Atlas Map 95



PHYSICAL ENVIRONMENT

The beach is coarse sand.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

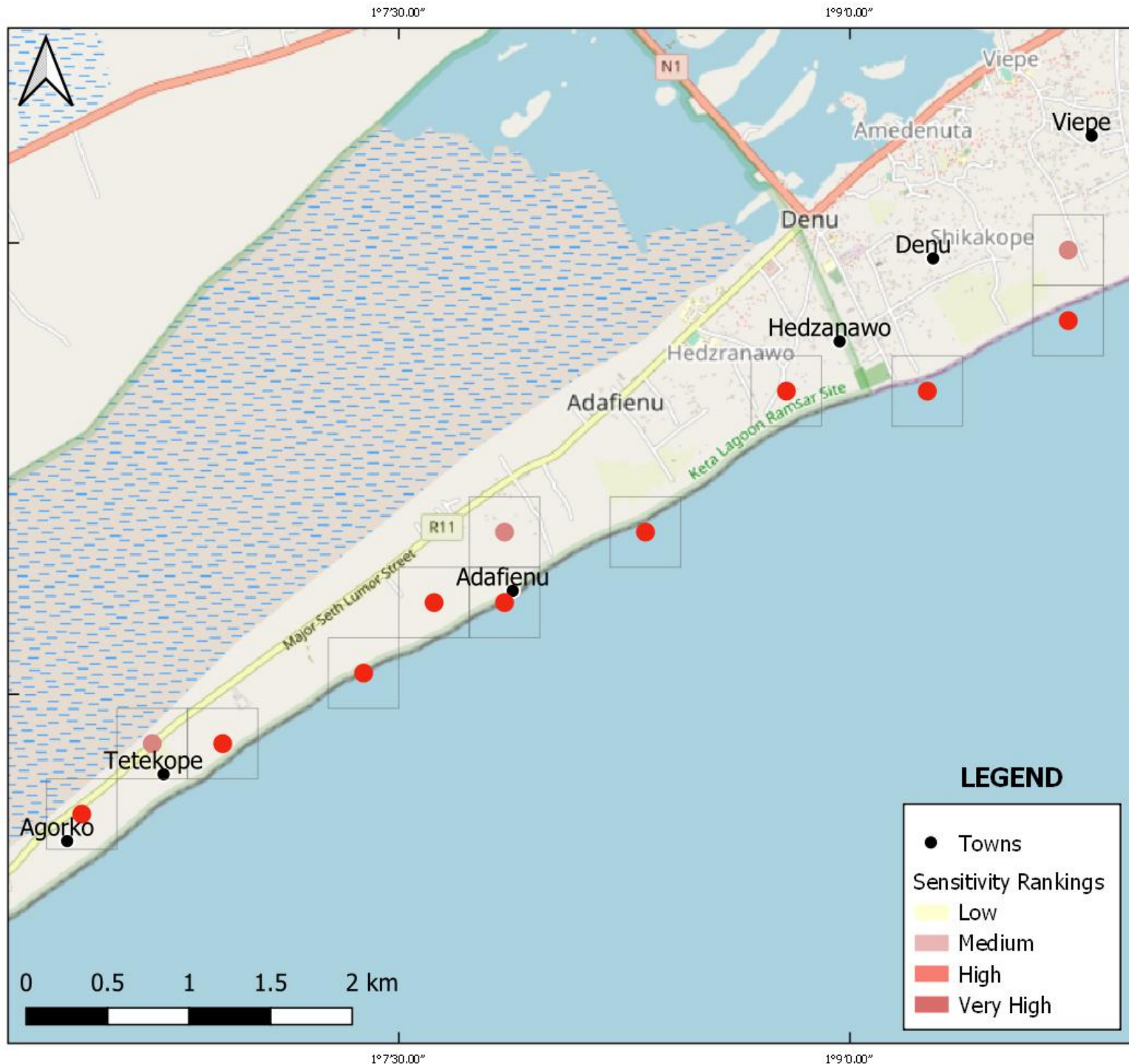
Turtle nesting : There are turtle nesting sites in the area.

LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



**Socio-economic Sensitivity Atlas
Map 95**



PHYSICAL ENVIRONMENT

The beach is coarse sand.

HUMAN ACTIVITY

Coastal Fishery: Agorko has 3 landing beaches at Tetekope, Davidkope and Agorko. The main fishing method at Davidkope and Agorko is beach seining. Adafienu has 4 landing beaches namely Kaworkope, Dzigakope, Agbadzikope and Daworkope. Kaworkope and Agbadzikope practice mainly beach seining while Dzigakope and Daworkope practice both beach seining and purse seining. Hedzranawo has one landing beach and the main fishing method is beach seining.

There is one landing beach at Denu with the main fishing method being purse seining.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High

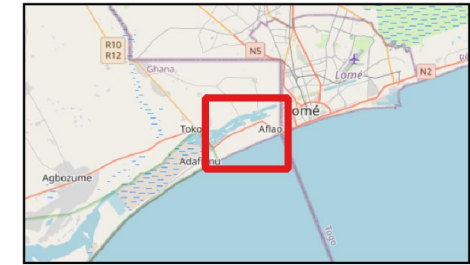


1°9'0.00"

1°10'30.00"

1°12'0.00"

Ecological Sensitivity Atlas Map 96

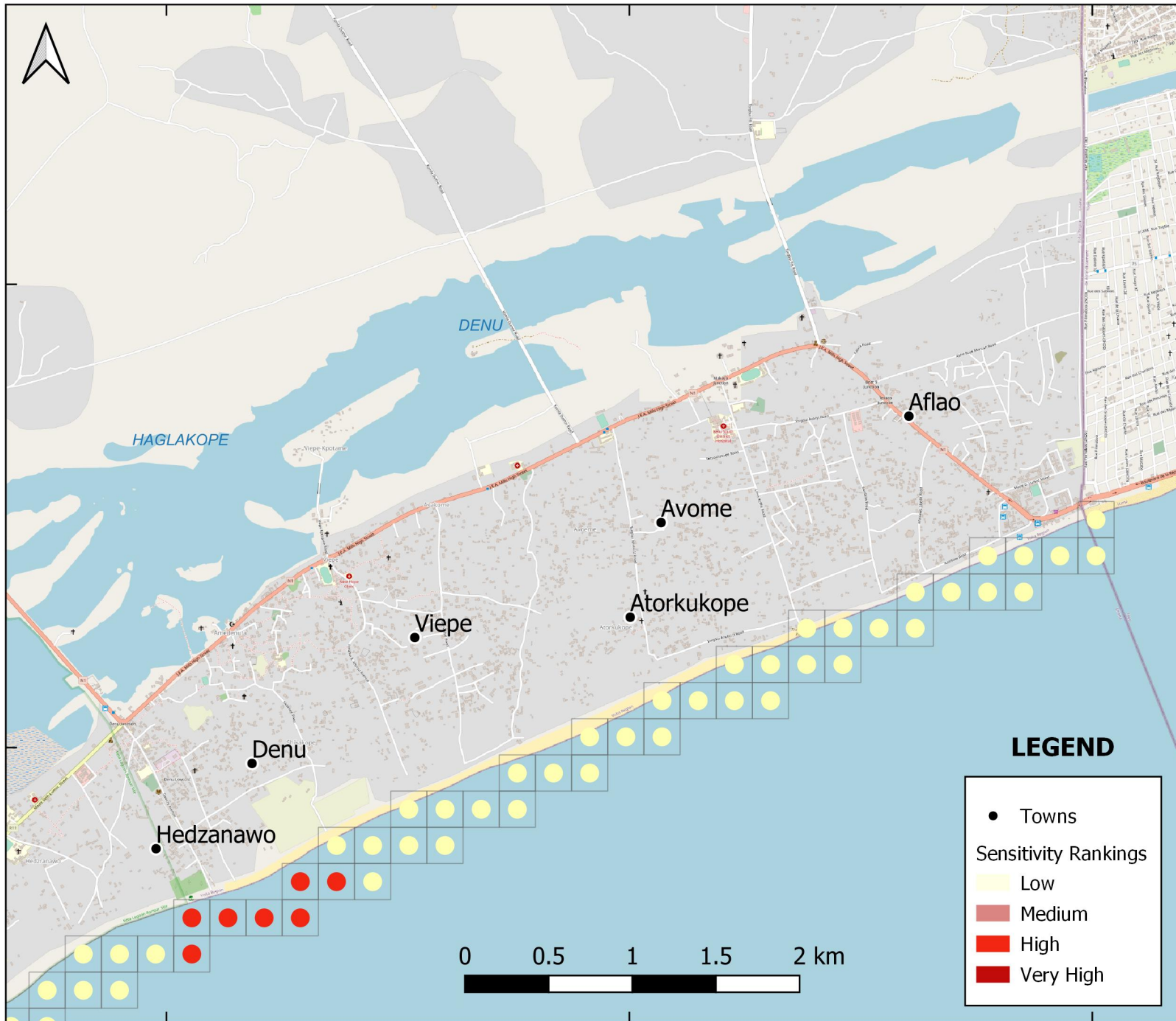


6°7'30.00"

6°7'30.00"

6°6'0.00"

6°6'0.00"



1°9'0.00"

1°10'30.00"

1°12'0.00"

PHYSICAL ENVIRONMENT

The beach is coarse sand. There is a lagoon in the area, the closed Denu Lagoon. The Lagoon will not be affected by a marine oil spill.

ECOLOGICAL ENVIRONMENT

Sandy beaches generally have low species diversity.

Denu Lagoon
Birds: Denu Lagoon serves as a feeding site for water birds including Whimbrel, Turnstone, Common sandpiper, Little egret and Reef heron.

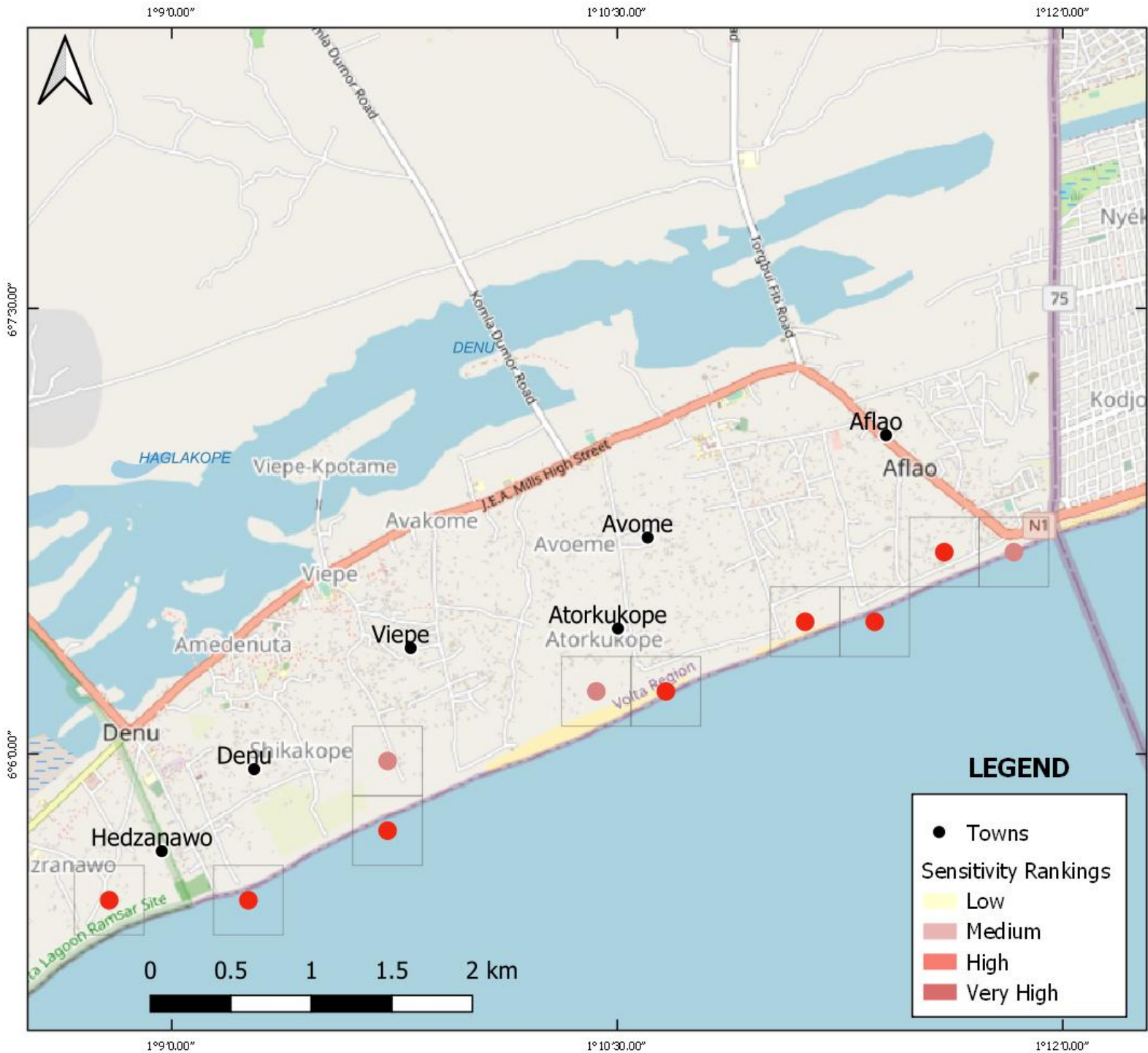
Turtle nesting: There are turtles nesting sites in the area.

LEGEND

- Towns
- Sensitivity Rankings
- Low
- Medium
- High
- Very High



Socio-economic Sensitivity Atlas Map 96



PHYSICAL ENVIRONMENT

The beach is coarse sand. There is a lagoon in the area, the closed Denu Lagoon. The Lagoon will not be affected by a marine oil spill.

HUMAN ACTIVITY

Coastal Fishery: Viepe has one landing beach at Viepekope. The main fishing method is beach seining. Avoeme has two landing beaches at Atorkukope and Avoeme. The dominant fishing methods practiced there are purse seining and beach seining.

Aflao has three landing beaches at Atsisokope, Abeliakope and Sapenukope. The main fishing method at Abeliakope is line fishing while Atsisokope and Sapenukope practice mainly beach seining.

LEGEND

- Towns
- Sensitivity Rankings
 - Low
 - Medium
 - High
 - Very High

