

## **INTRODUCTION**

Qatar is an independent sovereign Arab State with a population of about 650,000. Doha where 80% of the population live, is the Capital and Administrative Centre of the country. Other major towns in Qatar includes Messaieed, Dukhan, Al-Khor and Al-Shamal.

Oil has played as significant role in Qatar's economy accounting for about 85% of export earnings and 75% of government revenues. Currently Qatar has oil reserves of about 3.3 billion barrels and also has the third largest reserves of liquefied natural gas (LNG) in the world, and possesses 30% of the world's proven gas reserves. In the agriculture sector, the country is making efforts to strengthen the growth of agriculture by offering several incentives to investors. Qatar has 28,000 hectares of arable land.

The government has placed increased emphasis on the conservation of biological resources. The marine and terrestrial eco-systems of Qatar includes several important species of flora and fauna of bio-diversity value, a few of which are believed to be threatened and endangered.

### **Geographic and Environmental factors:**

Qatar is a peninsula located half way along the western coast of the Arabian Gulf. It covers an area of 11,437 sq. kms including a number of coastal islands. The total coastline including the island is over 700 kms. The land area is largely flat and stony desert with a climate hot and arid. Humidity is high in summer, and the average annual rainfall is around 75 mm.

The total area of Qatar's sea-water is approximately 35,000 sq. kms. The waters around Qatar are extremely shallow with an average depth of 30 m in the North and East, while in the western side it is only 20m. The sea bottom sediments near Qatar's coastline are mainly hard sand, rocks and coral reefs.

The high evaporation of the water especially in summer, the very low rainfall, and the low inflow of freshwater are the main factors which produce high sea water salinity. The salinity within Qatar's waters varies mainly between 39 ppt and 41 ppt at the surface, but in some parts it is observed to be around 60 ppt. Biological production is considered relatively high in the waters of the Gulf. Plankton biomass is comparatively high in northern Qatari waters.

The dissolved oxygen in the coastal waters of Qatar is around 6.5 mg/l (average) for most parts of the year. Around the coastal region, the tidal variation results in the exposure of stretches of tidal flats around the peninsula.

# **CONSERVATION OF BIODIVERSITY OF QATAR**

## **1.0 Introduction:**

Qatar was a signatory to the Bio-diversity Convention during the Earth Summit in June, 1992. Development of natural life and its conservation is a priority for the State.

However, illegal fishing and hunting coupled with modern sporting weapons has a direct effect on the survival of the bio-diversity. It, therefore, becomes necessary to create awareness amongst the citizens. This should be backed up with enforceable legislation.

## **2.0 Achievements in the conservation of bio-diversity**

A national committee consisting of representatives from concerned agencies was set up in the Environment Department. Their mandate was to list out the items and an action plan for implementation. The work pertaining to different aspects of conservation is being carried out through different agencies.

### **2.1 Ecosystems/Habitats**

#### **2.1.1 Marine Ecosystems**

Surveys of aquatic ecosystems have been carried out. These include the following:

- Bio-diversity in the areas of natural and planted mangroves (*Avicennia marina*) and sabkhas, (1996).
- Locations and range of pearl oysters in Qatari waters.
- A preliminary study of the Arabian Gulf fish in the aftermath of oil spillage during the Gulf War, 1990.
- The state of fisheries in Qatar, 1980 to 1992.
- The recent Survey (1997) by the Environment department on the coastal habitats indicates that a variety of intertidal and subtidal habitat occur along the coast of Qatar.

The intertidal habitats includes tidal flats with salt marshes, long wide sandy beaches, rocky shores, mangroves and mixed type of sandy shores with rocky outcrops. Near shore subtidal includes seagrass beds and coral/hard bottom ecosystems. In general, the sea bottom of the northern area was found to be characterized by a uniform seafloor of mainly silty calcareous sand. Most of the coastline of Qatar consists of either sandy or mixed sand/rocky habitat which composed of unstable, coarse sand, which regularly moves across areas of exposed beach rock. A well developed mangrove swamp stands around Al-Thakhira and large population of resident and migrant birds reside in this area. *Avicennia marina*, the only mangrove species exists in Qatar. Along the northern and eastern coast of Qatar, mangrove vegetation was sparse and mixed with the salt marsh (Sabkha) frontier vegetation.

Few patchy seagrass beds were noticed along near shore subtidal regions where substratum consists of fine sediments and comprised of a single species *Halodule uninervis*. Tidal flat was the major habitat found along the central east, northern and northern west coast.

#### **2.1.2 Relevant books by concerned agencies have been published:**

- Qatar University, "Common species of fish in Qatari waters", (1982)
- Department of Fisheries, "Fishes of Qatar" (1983)
- Qatar National museum, "Qatar and the Sea", (1987)

#### **2.1.3 Some of the areas in which research is being carried out are as follows:**

- Diversity of marine organisms in the environment of coral reefs in Qatari waters and the effect of organic compounds on these.
- The effect of ban on catching shrimps on the restoration of their stocks.
- A biological study of king fish.

- An ecological study of migratory birds in Qatar.

#### **2.1.4 Terrestrial Ecosystem**

The terrestrial ecosystem of Qatar comprises of an open desert which is mostly flat and stony with a few hills rising upto 40m above sea level in the western and northern parts of the country. The southeast part of Qatar is dominated by large sand dunes. The open desert scrub communities is dominated by *Acacia tortilis* and *Lycium bushes* along with the dominant shrub *Zygophyllum qatarense*. The land-use pattern in Qatar is limited to about 5% pasture and less than 1% of cropland with the remaining mainly semi desert, often grazed by livestock. Vegetation in the desert is sparse but quite diverse. Xerophytic species are widespread. Other terrestrial habitats include cultivations, plantations which dot the landscape wherever soil or pumped water supplies are available. Prominent species among the plantations include date palm.

### **2.2 Plant Environment**

**2.2.1** A laboratory has been set up in the Department of Agricultural and Water Resources for the culture of plant tissues. The following jobs have been done:

- Reproduction of very high quality palm trees.
- Conserving natural and indigenous trees.
- Introducing species from places having a similar environment.

**2.2.2 The results of the published research work cover the following:**

- Plant Environment in Qatar.
- Medicinal and toxic plants in Qatar.
- Agricultural development in Qatar.
- Sabkha plants.

**2.2.3 355 plant varieties and 106 types of fungi have been identified. Research**

**has been taken up on the following:**

- Grazing plants in Qatar.
- Green cover in Haloul Island.

### **2.3 Vertebrate Fauna**

A detailed survey has been initiated to document the birds, reptiles and mammals of marine and terrestrial ecosystems in Qatar. This includes turtles, lizards and snakes, as well as migratory birds occurring in Qatar. The surveys will aim to map the status and distribution of the faunal communities in Qatar's environment.

### **3.0 Natural Reserves**

**3.1** The State encourages private farms. There are 1123 farms of which 40 belong to the Government. There are 4 natural reserves while there are 30 farms for breeding gazelles and ostriches. The main ones are in Al Shahhaniya, Ras Ashairij, Haloul Island, Khor Al-Adaid, Al Aaliya Island, Al Thakhira and Tribuk.

**3.2** A project is under way for setting up 3 reserves aimed at breeding plants facing depletion. A reserve for gazelles is being planned in Mashzabiya.

### **4.0 National Committee on Bio-diversity**

As part of Qatar's role in fulfilling its obligation to the Convention on Biological Diversity, a National Committee on Bio-diversity (NCB) was established in 1997. This committee comprises of representatives from the Environment Dept., University of Qatar (Botany, Zoology, Marine Science departments), Researchers from the Fisheries Dept., Agriculture and Water Research Dept., Agriculture development dept., and Qatar National Museum (Marine Section).

### **5.0 Database**

A database has been established to document the components of biological diversity in Qatar. Floral and faunal groups of relevance (Coastal and marine, Terrestrial bio-diversity) have been included as part of this databank.

Currently the database includes 32 species of plants, 111 species of fish, 13 species of corals, 4 species of reptiles, 102 species of birds and 9 species of mammals. The database is in the process of being updated. The bio-diversity database can be searched on the Ministry web site at ([www.mmaa.gov.qa](http://www.mmaa.gov.qa)).

## **6.0 Legislation**

**6.1** A number of regulations and decrees have been passed. Notable among these are the following:

- Law No. 12 of 1981 for regulating agriculture.
- Law No. 4 of 1983 for the use and conservation of marine resources, amended by decree No. 17 of 1993
- Law No. 1 of 1983 for protection of animal health.

**6.2** Emiri decrees have been issued calling for the protection of the marine environment from pollution. This includes pollution from ships and also from land-based sources. Decree No.55 of 16 December, 1996 approved the Convention on Bio-diversity such that it has the power of law.

**6.3** Ministerial decisions have been taken to prevent the import of diseased plants and the conservation of marine resources. This includes the ban on shrimp harvesting.

**6.4** Circulars and notices are also issued by the concerned Ministries from time to time. These cover trawling practices and the types of nets to be used so that non-commercial marine life is not affected.

## **7.0 Challenges**

- The Environment Department is new. There is a need to increase the staff and also have a network of experts in Qatar or the GCC who could help in the field.
- There is a need for greater funds for taking up studies and also hiring competent specialized staff.
- There is a need to have regional cooperation on many aspects regarding marine biota, the effects of marine pollution and illegal fishing. A greater degree of cooperation requires to be fostered amongst GCC countries.

## **8.0 Future and long-term Programmes**

Conservation of biodiversity is a multi-disciplinary task. Cooperation at the international and regional levels is called for. It is very important for Qatar to conserve its plant, animal and marine resources through education and awareness and by enforceable laws. It must have the necessary monitoring capabilities as well.

The scientific back-up is very necessary. The priority items are as follows:

1. Surveying conducting research on all local plants and animals and establishing a data bank.
2. Following-up and providing protection for the species which are threatened and endangered.
3. Helping in preparing workshops and meetings on bio-diversity and publishing the economic data and information as an added value to bio-diversity.
4. Surveying the areas targeted for conservation and specifying the programmes for their development, and administration in the appropriate manner.
5. Supporting scientific research for the improvement of genetic features.
6. Setting the work priorities of the uses of bio-technology in Qatar, and specifying the possible joint projects in this field.



7. Establishing a “gene bank” for the conservation of local species and types.
8. Preparing the outlines for using genetic engineering, its products, and investigating its effects on health and environment.
9. Preparing additional legislation, where required, for conservation of bio-diversity.