

## NEED FOR CONSERVATION AND DEVELOPMENT OF NATURAL MANGROVE FOREST OF U.A.E.

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Under the personal direction, guidance and supervision of H.H. Shaikh Zayed Bin Sultan Al Nahyan, the President of U.A.E., starting in the late sixties, great strides have since been made in the greening of the desert especially in the Abu Dhabi Emirate. Besides doing outstanding land scaping work in major cities like Al-Ain and Abu Dhabi, thousands of hectares of sandy desert lands along highways and major roads and around new townships have been reclaimed, afforested and planted in the last about a little over a decade. Most of the afforestation work has been carried out and is being maintained with artificial drip irrigation utilizing the locally available brackish underground waters.

Not much attention, however, has been paid so far to the conservation and development of a few naturally occurring indigenous vegetational types which have suffered a great deal on account of excessive exploitation because of increasing pressure of population in the recent past. One of these natural vegetational types is the mangrove forest.

Mangrove forest is one of the important vegetational types of the United Arab Emirates. It occurs on muddy flats or fine textured soils along sheltered localities of the coastline and some islands. It is daily flushed by sea water several times. It can stand considerable amount of submersion under sea water and is characterised by the presence of numerous pneumatophores—the respiratory roots protruding all around the mangrove trees to considerable distances.

Associated with the mangrove tree growth on relatively higher ground outside the reach of the high tides and wave action are the salt bushes like *Salicornia*, *Suaeda*, *Halopeplis* and *Limonium* etc.

The mangrove vegetation provides leaf fodder and browse to the livestock, especially camels, fuelwood and small timber, including fishing stakes. The lagoons and creeks containing mangrove vegetation are very valuable breeding grounds and provide shelter to coastal fisheries and other useful wildlife. They are also necessary for having moderating influence on the local climate and for their aesthetic and recreational value.

As in the case of the inland vegetational types, the mangrove forest also suffered a great deal on account of over exploitation and mismanagement in the past. Not only has the area under the mangrove forest in U.A.E. shrunk to the

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present only about 3,000 hectares, but the quality of its tree growth also has been very adversely affected. The more demanding and useful mangrove species have disappeared altogether. Only 'Quorm' (*Avicennia marina*), a colonising and pioneer species adaptable to the newly formed or relatively poor habitat conditions, is now found in the emirates mangrove forests. Immediate steps are, therefore, required to be taken to conserve and rehabilitate the surviving mangrove forest and to extend it to areas which may still be found suitable for its propagation.

**Need For Survey, Mapping and Demarcation:** The first step to conserve and properly manage the existing mangrove forest should be to survey, map and delineate this vegetational type on the topographic maps. This can be done best with the help of air photographs taken at the scales of 1 : 25,000 and 1 : 10,000 along with the necessary ground control. Overall photography may be done at the smaller scale of 1 : 25,000 to prepare the topographic maps of the areas containing mangrove vegetation. And for a detailed study of the patches of the mangrove vegetation, air photographs may be taken at the larger scale of 1 : 10,000.

Delineation should be carried out on the topographic maps not only to mark the existing mangrove forest but also to demarcate the areas which have the potential to be suitable for the extension of the mangrove forest. This will enable one to determine the area under the surviving mangrove forests and the total suitable area that could be afforested to bear and sustain this valuable vegetational type.

**Proper Conservation, Development and Management of the Mangrove Forest:** Most of the surviving mangrove forest area is in state ownership and should be protected and properly managed by the governments of the various emirates. At places the mangrove forest is threatened of extinction by urbanisation and industrial development. As far as possible this may be avoided or even prevented.

Management plans may be prepared for blocks of mangrove forest in the various emirates. The management plans will deal with the demarcation of boundaries, fencing where necessary, tending and scientific exploitation. The management plans would cover the rotation or exploitation age of the 'Quorm' (*Avicennia marina*) which would require to be determined. The plans would also provide for the natural and artificial regeneration of the poorly wooded areas and those blank areas which are considered fit for raising the mangrove forest.

For the application of proper management to the mangrove forests which are a renewable resource, a number of silvicultural and management studies of the emirates mangrove forest type would require to be undertaken. They will deal



with matters such as suitable techniques for natural and artificial regeneration of the local mangrove forest type, spacing and thinning studies, growth rates and suitable rotation and exploitation age, etc.

**Introduction of More Valuable Mangrove Species:** The emirates mangrove forests at present contain only single pioneer species, *Avicennia marina*, known for colonising the newly formed areas suitable for sustaining mangrove vegetation. With the introduction of proper conservancy and management in these forests, attempts should be made to introduce more mangrove species from ecologically similar mangrove habitats.

More valuable mangrove species like *Rhizophora mucronata*, *Bruguiera gymnorhiza* and *Ceriops candoleana* from the nearby mangrove forests of Pakistan where they are growing naturally, and from other comparable ecological areas should be tried. These mangrove species though more demanding and delicate are economically much more valuable.

**Need for A Forest Conservancy and Management Law:** For introducing and applying proper conservancy and scientific management in the mangrove forests of the emirates and also in other valuable vegetational types, it would be worthwhile to enact a comprehensive forest law for the United Arab Emirates as a whole. This law could be applied by individual emirates to their respective territories. The forest law would envisage a technically trained and suitably constituted forest service to apply and enforce the provisions of the proposed law.

A study of the already existing forest laws framed and applied in some of the Middle Eastern countries would be useful while preparing the Emirates Forest Law. The FAO have considerable know-how and experience in this regard and could be asked to provide suitable consultancy services in drafting the outlines of the proposed forest law for the Emirates.