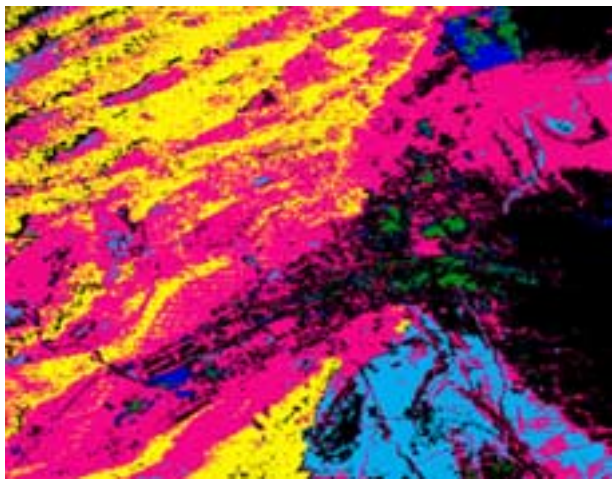
Plants in Arid Lands and Their Utilization

PART 1 : Introduction

In recent years, desertification and soil erosion caused by deforestation and land degradation are becoming very serious problems, especially in arid and semi-arid regions. International organizations and local governments have been conducting many kinds of projects to prevent environmental degradation. And as one of them, afforestation in arid region is highly important and indispensable. Purposes of afforestation are as follows;

1) To increase crop production by protecting farms from wind/sand with forests,
2) To supply forestry products such as food, fire wood, charcoal and lumbers,
3) To feed livestock,
4) To preserve soil and water, and
5) To give opportunity for employment and to activate local economy.

There are various kind of growing forms of trees and kind of utilization of them, which depends on their species. Therefore, the characteristics of those plant species and natural habitats of a project site must be well grasped before an afforestation project is implemented. In this series, we describe the relationship between typical landscape and natural vegetation in Al Ain, UAE, as an examples in arid lands. Then we will introduce the characteristics of major species found in each landscape. And finally, we will discuss a method of zoning for agriculture/afforestation development planning derived from the relationship between natural vegetation and their environmental factors (landscape, soil, underground water, etc.).



This is a Landsat satellite image of Al Ain analyzed by maximum likelihood method. Classification of the land is as follows;

Farmland
Sand dune
Mountains
Alluvial fans
Lowland between dunes and others

In and around Al Ain area, general tendencies between landscape and vegetation are recognized as follows;

Landscape	Vegetation
1) Rocky mountains (without soil)	*Acacia tortilis*
2) Around wadi in mountains	*Zyziphus spina-christi*
3) Alluvial fan-1 (flood area)	Bare land
4) Alluvial fan-2 (marsh)	*Prosopis cineraria*, *Haloxylon salicornicum*
5) Alluvial fan-3 (others)	*A.tortilis*, *Rhazya stricta*, *H. salicornicum*
6) Dune -1 (boundary dune)	*Cypelus conglomeratus*
7) Dune -2 (dune)	H. *salicornicum*, *Panicum turgidum*
8) Wadi	*Calotropis procera*
9) Lowland between dunes	*Zygophylum hamience*

We will report about typical landscape and major vegetation of the area in coming issues.