



Educational session



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THE ICBA EDUCATIONAL LANDSCAPE DESIGN PHILOSOPHY

Landscape showing diversifying features



The Dubai based International Centre for Biosaline Agriculture (ICBA) is the global centre of excellence for innovative agriculture in saline and marginal environments. The ICBA has created an educational landscape at its headquarters in Al-Ruwayyah. The landscape philosophy is to create an educational and cultural entity which is unique, to optimise water use, and inspire visitors with its architecture and plant diversity.

To accomplish the unique landscape philosophy, ICBA has taken the initiative to establish an educational landscape displaying various features uncommon to normal landscapes, including plots of salt tolerant grasses and plants identified after many years of research at ICBA. These grasses are unique and grow well at high water salinity levels, which save the costly fresh water resources, while the mowed grass is an excellent source as forage. The landscape and surrounding areas display diversity of plants (ground cover, trees, native plants, shrubs, flowers, hedges etc). When properly labeled with information



One of 7 sands circles showing red sand

these plants provide knowledge and diversity—a taste of “Botanical Garden.” Significant efforts have been made to design landscape architect by using scientific means to efficiently use irrigation water by using smart irrigation (distribute the right amount of water essential for landscape care) systems (drip, bubbler, sprinkler) appropriate to plant type. Stones of different colours can provide the “natural” desert look when combined with suitable plants. Therefore we have the plan to add this component to show a combination of hardscape, xeriscape and greenscape concepts to optimise irrigation water use. Hardscaping is inexpensive and easy to create and maintain. It also doesn't require water or other types of care like living landscaping features do. A two to three inches protective layer (organic or inorganic mulching) helps the soil hold water, keep it cool, reduce evaporation, reduce undesirable weeds, permits better water absorption, feeds nutrients to plants and enhances landscape diversity and aesthetic value.



Limestone addition

Rest area and associated landscape



Aflaj system



List of plants used in the educational landscape design as well as those present to the immediate vicinity, in future plant diversity will increase.

Plant types	Scientific name
Trees	<i>Phoenix dactylifera</i>
	<i>Azadirachta indica</i>
	<i>Prosopis cineraria</i>
	<i>Conocarpus lancifolius</i>
	<i>Plumeria alba</i>
Grasses	<i>Distichlis spicata</i>
	<i>Paspalum vaginatum</i>
	<i>Sporobolus virginicus</i>
	<i>Sporobolus arabicus</i>
	Ground cover
<i>Ipomea pescarpea</i>	
<i>Portulaca grandiflora</i>	
<i>Wedalia tribulata</i>	
Shrubs	
	<i>Atriplex nummularia</i>
	<i>Atriplex halimus</i>
	<i>Atriplex lentiformis</i>

As far as UAE heritage is concerned; an Aflaj has been added, reminiscent to the older way of water transport. Seven circles distributed in the landscape area present seven different types (colour and composition) of sand from UAE— an attraction to international visitors (ecotourism) and the youth, education and means of entertainment. Similarly the landscape also displays boulders of suitable sizes representing dominant types of mountains in the UAE. Each entity of the landscape will provide sufficient information suiting the



Atriplex aroh and tree



One of 7 sands circles showing white sand

expectation of the visitors and will avoid further assistance for explanation, making it user friendly. Neat and organised curved interlock walkways are a great addition to landscape design and provide an easy access to visitors enjoying a high aesthetic look of the entire landscape.

The ICBA educational landscape is created to immediate vicinity of other means of scientific values, such as, an easy

accessible from landscape is state-of-the-art weighing lysimeter. A nearby weather station provides additional information about climatic data such as temperature, humidity, wind speed and solar radiation. The supervisory control and data acquisition (SCADA) system demonstrates the technical feasibility of using real time measurements of soil moisture and salinity to manage irrigation in sandy soils. A soil museum to be launch soon presents a

great diversity of soils in their near natural conditions “soil monoliths,” as well as displaying rocks, stones and minerals and other features. Next to the soil museum is, “Genebank” where valuable salt tolerant germplasm of over 12,000 accessions representing over 250 species is conserved at four degrees Celsius, where seeds remain viable for several years. The state-of-the-art laboratories especially equipped for soil, water and plant analyses are a further source of learning in addition to the landscape features. An agricultural workshop on one corner of the landscape offers diversity of machinery from soil preparation to automatic forage harvesting and packaging. The nearby windbreakers (salvadora, neem, conocarpus, prosopis trees) protect landscape from wind and dust storms. The ICBA management is confident that the Educational Landscape Design and other scientific facilities at ICBA are of great inspiration to visitors and an educational tool for visitors and especially students of various levels.

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