

Contribution to the International Year of Soils 2015

Soil Education and Sustainable Development



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Of eight planets in the solar system the Earth ranks fifth in size after Jupiter, Saturn, Uranus and Neptune. It is also the third planet from the sun and is the only planet known to have an atmosphere containing free oxygen, oceans of water on its surface, and life. Over centuries overexploitation of the planet resources has shrunk it to an unprecedented level and there is a growing concern that over years it may not be able to provide sufficient food to meet human demand and to provide ecosystem services (food, feed, fiber, plants biodiversity, living organisms and habitats, raw material, nutrient cycling, water storage, buffering for pollutants, climate change mitigation and beautiful landscapes.)

Rapid population growth, soil erosion, salinisation, contamination, urbanisation, overgrazing and biofuel production are the main factors to increase pressure on land resources. As a result, globally 33 percent of soils are degraded due to diversity of ailments, whereas 20 percent of irrigated lands are salinised to various degrees costing US\$ 27.3 billion because of lost crop production. Current figure shows that the world is losing 2000 hectares of farm soil daily to salt-induced degradation, and worldwide over 24 billion tons of soils are lost on croplands to erosion every year, that is more than three tons of soil per person on the planet.

Climate change impact will cause food and water shortages, increased displacement of people, increased

poverty and coastal flooding. The current data of global ecological footprint (EF) and bio capacity (BC) reveals that humanity needs the regenerative capacity of 1.5 Earths to provide the ecological goods and services we use each year. Business as usual will lead us to have two earth planets by the year 2050 to feed current 7.3 billion and 2 billion extra mouths, but we have only one earth planet and no virtual earth to import.

This shows that the capacity of the Earth resources sustainability for future is at risk, and, therefore its conservation is imperative, which requires the recognition of its importance to feed the current and growing population and ecosystem services. Internationally, there has been a growing movement calling for increased awareness about the importance of soils and the critical role they play in securing our food.

Considering the importance of soils for providing food and other ecosystem services the 68th United Nations General Assembly has declared 2015 as International Year of Soils (IYS). The Food and Agriculture Organization of the United Nations (UN) has been nominated to implement the IYS 2015, within the framework of the Global Soil Partnership and in collaboration with Governments and the secretariat of the United Nations Convention to Combat Desertification (UNCCD). The Dubai based International Center for Biosaline Agriculture (ICBA) joined Global Soil Partnership (GSP) and The Intergovernmental Technical Panel on



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SOIL

Soils (ITPS) that was established at the first Plenary Assembly of the Global Soil Partnership held at FAO Headquarters on 11 to 12 of June, 2013. Over the years ICBA has contributed to various activities of the GSP-ITPS.

The IYS 2015 aims to increase awareness and understanding of the importance of soil for food security and essential ecosystem functions. ICBA since inception in 1999 has been providing agriculture related education through various tools and developing skills and knowledge across different continents.

One of the globally recognised tools for soil education is the Soil museum. Soil museums display and preserve the different soil structures, patterns, types and soil diversity and has been an effective tool used to promote knowledge about soil, its importance, and the role it plays. However, there are very few soil museums in the world, namely: the Smithsonian's National Museum of Natural History, Soil Museum of Thailand, World Soil Museum-ISRIC Wageningen, Soil Museum of Vietnam, and recently China has taken initiative to house soil museum in Beijing. No soil museum exists in the GCC countries despite the huge soil losses and disruptions that the region has faced over the centuries due to the harsh climate. To fill this gap, the unique soil museum that will be soon launched at ICBA has a mandate to serve the community with



Soil education at outdoor exhibit linking soil health to urban landscaping

information about the UAE soil resources to help address various issues related to agriculture, food security, desertification, environmental protection and national development.

The soil museum will be a place where soil information seekers are able to access soil information and learn the values of soils and their conservation for sustainable soil services and environmental protection (all under one ceiling – a stop soil shopping).

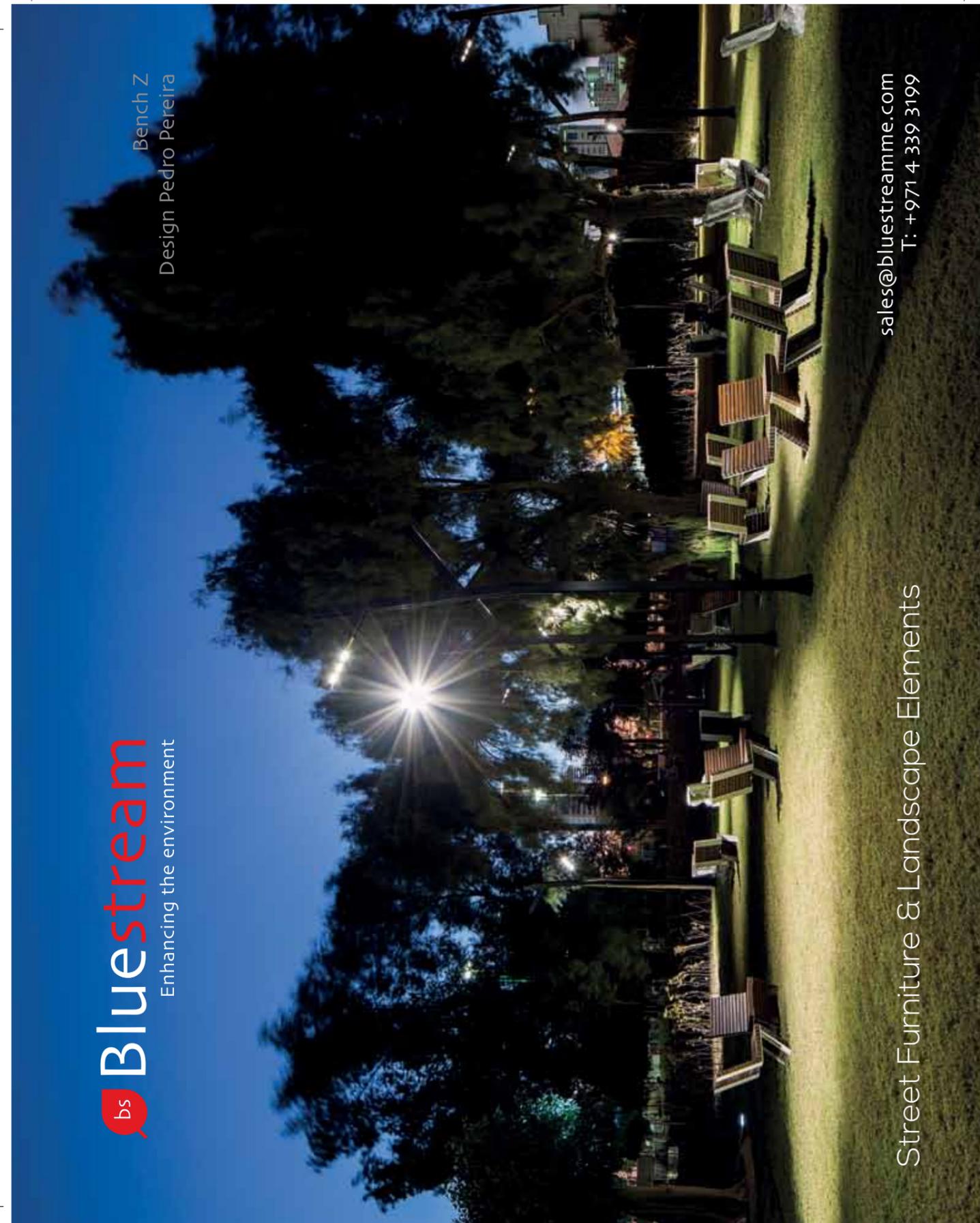
Indoor exhibit of soil museum showing diversified features for soil education

The soil museum will cover indoor and outdoor exhibits (educational landscape design) and provide visitors with a unique learning experience about soils, their importance and sustainable uses. The soil education will be provided through different soil education modules that cater to the needs and demands of a diverse range of visitors from school children, to university students, researchers, professionals and scientists, environmentalists, professional contractors, land use planners, decision makers and policy developers. In addition, displays with interactive games, animations, and movies will be on site to engage students. Interactive applications will be available for students to download on their iPad and mobiles. In parallel, we will also pursue to establish an online virtual museum which will expand the educational benefits and reach more information seekers.

Soil education at outdoor exhibit linking soil health to urban landscaping. We hope, with the opening of soil museum, the community will be benefitted and the youth (the managers of tomorrow) will understand the values of their soils, will have motives to conserve for food, ecosystem services and sustainable development for many years to come.



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