هيئة حماية البيئة والتنمية
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EPDA Executive Director is among with UAE delegation at the 12 Meeting of the Conference of the Contracting Parties to the Ramsar Convention on Wetlands

Dr. Saif Al Ghais, Executive Director of EPDA participated the Asian group session to discuss some draft Resolutions in the 12th Meeting of the Conference of the Contracting Parties to the Ramsar Convention on Wetlands. The conference confirms the role of UAE in support of the Convention on the regional and international levels. The event took place in Republic of Uruguay from June 1 to 9, 2015. The committees also discussed the importance of the impact of climate change on wetlands and land and its vital role in reducing carbon levels and absorption that leads to reduce the impact of climate change. The importance of spreading awareness and education about the value of wetlands and the benefits of land ecosystems between local communities, including strengthening cooperation with stakeholders to maintain the wetland was also another topic discussed in the conference. The conference discussed the importance of wetlands in solving the problem of global water scarcity, where wetlands constitute a sustainable solution for natural resources such as water and food for humans and many other services. The importance of wetlands in reducing natural disasters such as desertification, land degradation and hurricanes and the importance of programs to mitigate the effects of climate change through the wetlands that run on carbon storage systems effectively. In the coming years, a gradual plan to include the Arabic language as an official language in the Convention due to its importance was also adopted as a resolution.

Arabian Oryx... A desert endangered animal

Arabian Oryx is considered one of the largest desert mammals that live in the Arab region. It is considered an important part of Arab heritage throughout history. Arabian Oryx is one of the desert creatures that have managed to live and adapt to areas where no water or trees can be found. Instead, they rely on the moisture from their food and can also retain water through a special kidney adaptation. The Arabian Oryx species is threatened with extinction and has thus been listed in the first group of species protected by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The Arabian Oryx was in danger as early as the early sixties within the Arab peninsula. His Highness Sheikh Zayed bin Sultan Al Nahyan (may God have mercy on him) directed to protect Arabian Oryx and provide natural reserves to allow the species to breed. Due to the efforts of Sheikh Zayed in the protection and resettlement of the Arabian Oryx, UAE today has become home to the largest number of Oryx in the world with around 4,500- there are about 3,500 to 3,700 of them in parks and private farms in Sir Bani Yas Island, Al Ain zoo, Wathba and Jerf. As a result of the breeding efforts, Arabian Oryx moved from extinction of endangered animal's category to the category of "critical situation" according to the Red List of Threatened Species issued by the International Union for Conservation of Nature.

EPDA Vision:

Protection of the environment and the sustainability of its resources .

EPDA Message:

Excellence in providing, monitoring and environmental awareness services and promote the concept of environmental citizenship, through the application of environmental laws and regulations and investment in relationship with our partners and conduct studies and research that contribute to the protection of our natural resources.

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Environmental Event

" World Day to Combat Desertification slogan .... June 17, 2015 "

Theme: "No such thing as a free lunch. Invest in Healthy Soils".

The United Arab Emirates (UAE), together with all countries of the world, celebrated the World Day to Day to Combat Desertification 2015 under the slogan "No such thing as a free lunch. Invest in healthy soils". The effort was in hope of improving the interrelatedness and cooperation to combat desertification which destroys vegetation, soil and decreases agricultural production. This year's theme has come to confirm and reminds us of the importance of fertile soil as a natural resource, and the yearly loss of 75 billion tonnes of soil worldwide due to drought, erosion, salinization and desertification. This in turn directly affects one and a half billion people over the world. The importance of soil for food security, biodiversity, water, energy and building capacity to adapt to climate change highlights the need for all countries, including UAE, to take the required measures to avoid the occurrence of further losses in the soil.

The History of World Day of Desertification

The first international effort to combat the phenomenon of desertification was at the end of the massive drought and hunger wave that swept the Sahel region of Africa in the period between 1968 - 1974, during which more than 200 thousand people died and millions of animals. The United Nations responded to the problem of desertification on an international scale for the first time at the United Nations Conference on Desertification held in Nairobi in 1977. The Conference tried to guide the affected countries to develop National Plans to address desertification and after several unsuccessful attempts to tackle the problem, desertification was further addressed during the 1992 Rio Earth Summer and was identified, along with climate change and the loss of biodiversity, as the greatest challenges to sustainable development. Shortly after, On June 17th 1991, the UNCCD (United Nations Convention to Combat Desertification) was established and was adopted and joined by those countries experiencing serious drought and desertification, particularly countries in Africa.

The concept of desertification

Desertification does not mean the invasion of sand dunes, but also means continuing deterioration of ecosystems of dry lands as a result of climate and human activities. It is considered one of the most serious climate challenges of our time because of the high impact on humans and the environment. The ecosystems include deserts and semi-arid lands, mountains, wet lands and small islands and some are important ecosystems characterized by unique features and resources.

The causes of the phenomenon of desertification

The phenomenon of desertification occurs as a result of several factors which can be associated with human factors such as over-exploitation of land, soil exhaustion and over grazing which removes vegetation that protects the soil from erosion and driftage. Other important human factors include excessive logging, deforestation, poor management of water resources, urbanization, poverty and increasing migration and population. Natural factors include climate change, drought and wind. Despite the presence of natural factors that exacerbate the desertification phenomenon, human causes of land degradation and desertification contribute more, further creating environmental, economic and social impacts of desertification.

Effects of desertification

Desertification affects one-sixth of the world's population and it also leads to lower soil fertility and soil structure in about 47% of the dry lands that make up the cultivated land areas. According to 2014 UNCCD reports, nearly 1.5 billion people depend on degraded soil areas. It is estimated that by 2020 , 60 million inhabitants will migrate from southern affected areas of Africa towards North Africa and Europe. As the world annually loses from 20-50 thousand km of land on the length of Africa due to land degradation, this is a high figure considering 43% of the region is considered to be prone or affected by the risk of desertification.It is expected that the region will lose two-thirds of Africa's agricultural land by 2025. The land degradation currently causes a loss of 3% of the domestic agricultural production per year in Sub-Saharan Africa.

International efforts to combat desertification

The European Union (EU) and the Organization of the United Nations Food and Agriculture (FAO), in collaboration with the Secretariat of the African, Caribbean and Pacific countries (ACP) launched a program known as "Measures To Combat Desertification", at a cost of 41million Euros with a duration of 4.5 years, with a view to promote sustainable land management and restore dry areas and deterioration in the African, Caribbean and Pacific regions. Organizers says that the program is critical to fight against hunger and poverty, promote stability, and build resilience and flexibility of response about the consequences of climate change in some of the most vulnerable areas in the world. In Africa, the program is based on the efforts of another major project called the "Great Green Wall initiative" in the desert and coast ", which was implemented in 2007, and soon became a lead initiative in Africa to combat the effects of climate change and desertification among African countries. African governments have initiated the adoption of this initiative in order to address the environmental, economic and social damage resulting from land degradation and desertification, along the countries on the coast of the African region and desert.Today this initiative supports local communities in sustainable management and proper use of forests and grass lands and other natural resources, particularly in arid land areas. The Initiative also works to mitigate the effects of climate change and adaptation, and also to improve food security and livelihoods of people in those countries.You can see the field results of the initiative clearly. In Senegal 11 million trees were planted that contributed to the restoration of 27,000 hectares of degraded land and in Mali, Mauritania, Burkina Faso, and Niger dune fixation was successful.

UAE's experience in the fight against desertification

The conditions in the UAE make it a country highly vulnerable to desertification, imposed by a range of environmental challenges contributing to desertification. Desert extends about 80% of the country's total area. Further more, along with the large rise of industrial activities related to oil which results in producing harmful waste for the environment; the high population growth rate, which reached an average of currently (5.6%) and is considered to be one of the highest population growth rates in the world; and the hot desert climate, where temperatures in summer reaches up to 47 ° C. Despite many difficulties, the UAE experience in the fight against desertification and land greening has been a success and has become a model to inspire other countries to follow its lead. Its success can be attributed to strategic management and effective government practice, emerging from a clear vision of environmental protection with a focus on critical environmental issues over the past three decades. Furthermore, the UAE has signed a number of agreements in the fields of combating desertification along with hosting and participating in meetings, conferences, seminars and workshops on both international and regional levels. The UAE had also founded departments and launched programs and events in this field through adopting a national strategy to combat desertification. UAE followed a far-seeing agricultural policy aimed at achieving a balance between environmental security and agricultural security due to the acquisition of the agricultural sector a high percentage of water consumption in the country. Methodologies included application of sustainable agricultural patterns such as organic agriculture, Hydroponics and encouraging plantation of salt-tolerant and drought plants. Promoting the usage of treated wastewater, landscaping of plants inside and outside the cities, public parks and forest. Implementation of forest belts projects on the roads and the application of good agricultural practices, climate-smart agriculture methods and local species plantation. "One Million & One Tree" is one of the most prominent initiatives launched by EPDA, which mainly aims to increase the number of green spaces using native species of trees, which consume little water quantities and contribute to soil stabilization.

Soilless... Alternative technique of natural soil

A lot of talk recently spread about agriculture without soil, and many people are trying to understand the secret of this agriculture, especially in this century. Agriculture without soil started as hydroponics in the Hanging Gardens of Babylon, floating gardens in Mexico, China and has been described in the literature of ancient Egyptian back to hundreds of years before Christ. In the past, in 1930, the scientists tested cultivation of plants without soil, using food elements dissolved in water. They found that the soil is only necessary for holding the roots of the plants. This system spread in the countries of Western Europe and is now being used widely in the Netherlands commercial production of food followed by Canada. The system has been used also inside submarines for vegetable production as well as used by the US space agency (NASA) in space experiments.

What is agriculture without soil?

Soilless is a technique to grow plants in nutrient solutions, which supplies the plant with all the needs of the necessary nutrients for optimal growth with or without the use of any of the media inert (soil substitutes) such as stones, vermiculite, rock wool and sawdust etc. to provide the required support for the plant.

Requirements of agriculture without soil

1. Nutrient solution or any combination of fertilizers used. It must contain major and minor necessary nutrients for plant growth: (nitrogen, phosphorus, potassium, sulfur, calcium, magnesium, iron, manganese, zinc, boron, copper, molbidnym and chlorine)

2. Control of the nutrient solution within appropriate range of the level of PH (acidity and alkalinity scale is divided from 1- 4, the solution is acidic if it is less than 7, alkaline if more than 7 and neutral if 7. PH known as the logarithm of the negative power of hydrogen ion concentration in solution) and each plant an appropriate level of PH gives the plant the best production.

3. Maintaining the proper temperature of the solution and providing oxygen from atmospheric air.

Features of agriculture without soil

1. Accurate control on plant nutrition compared to normal agriculture, which contributes to more efficient use of nutrients and production.

2. Reduce the needs for employment, as a result of not having the need for regular soil preparation activities such as plowing, settlement and others, as well as the use of automatic control of irrigation and fertilization processes.

3. Ease of irrigation process, so that the plants are not exposed to excess water.

4. Ease of Agriculture sterilization environments and re-use compared to the requirements of soil sterilization.

5. Increased productivity of plants due to better nutrition and process control, as well as the precise irrigation and ventilation roots process. 15 times in ideal conditions.

6. Advantages under special circumstances, and that's when the soil is unsuitable for agriculture, where farming systems deviate without natural soil or soil become a barrier to agricultural production, especially in areas of high population.

7. Great savings with the amount of irrigation water used as a result of the re-use of the nutrient solution. This is one of the comparative advantages of these systems in areas where less than the required amount of water for agriculture is available. It also reduces the amount of water lost by transpiration, providing 20-50% of the water used in the case of agriculture in the soil.

8. High efficiency in the use of fertilizers.

9. Homogeneity of the nutrient solution and easiness of adjusting the concentration of elements.

10. The means of agricultural intensification

Soilless cultivation... New agricultural pattern in the UAE

It is not surprising that the United Arab Emirates continues to be concerned for the environment and continues on a path in search for new technologies and means of enhancing the efficiency of the farming methods used in the country. UAE have adopted a pattern of agriculture without soil in order to meet the limited natural resources of the growing weakness of the soil, water scarcity, and because of the high efficiency in the use of water for irrigation. The government begun to transfer this technology to farmers in the Emirates and began encouraging them to adopt since 2009, giving them the support to establish hydroponics systems and production requirements at half price. Materials included fertilizers, pesticides, seeds, protected lounges and covered staples. This support increased the interest of farmers to the technique, which resulted in the recent years to increase the number of cultivation houses without soil. The total number of aquaculture farms in the country reached 70 by 2012. The farms produce various food products including cucumbers, tomatoes, green and colored peppers, melons, strawberries, lettuce types, and others.

Environmental Legislation

UAE Law #24 (1999) for
PROTECTION AND DEVELOPMENT
OF THE ENVIRONMENT

Part III: Soil Protection

Article 42:

Competent authorities should take into account the factors and environmental standards specified by the Commission in coordination with the authorities And the competent authorities concerned and that in the preparation and implementation of land use plans that is determined under the shadow areas allocated to the construction of agricultural and industrial areas, protected areas and others.

Article 43:

It prohibits any activity contributes directly or indirectly in the soil or damaging effect on the natural properties or pollution in a manner affecting the production capacity, according to the executive rules of pollution.

Article 44:

The competent authorities in cooperation and coordination with the Commission and stakeholders to work on the development of the desert environment resources and attention to biodiversity and increase green areas by using modern methods technologies and benefit from the advanced technology that protect agricultural areas and development. It is prohibited from engaging in any activity that would harm the quantity or quality of vegetation in any area leading to desertification or deformation of the natural environment, and prohibits the cutting or uprooting or damage to any tree or shrub or herb only with the permission of the competent authority in coordination with the Authority.

Samr Tree

Scientists call it Acacia tortilis.

You can see Samr tree on the lower mountain slopes and gravel plains throughout the year in the northern parts of U.A.E. and neighbouring countries. You can easily distinguish Samr from other trees by looking at the flat top and several trunks. Samr tree height is between 3 to 5 metres. It's often called “umbrella thorn” because of distinctively spreading crown. Samr tree can easily grow in places with high temperature and limited water. The tree is useful in many ways such as providing shade, making furniture, poles and posts for fencing, cages, and pens in the villages. Pods and leaves are used as fodder for desert grazing animals. Gum from the tree is edible and can be used as Gum Arabic. It's a plant of medicinal importance also. It helps in curing worms, skin infections, edema and allergic dermatoses.Samr tree considered one of the best trees for reclaiming sand dunes

Environmental Dictionary

Soil erosion

1. consists in the removal of soil material by water or wind. It is a natural phenomenon but it can be accelerated by human activities.

[definition source: EEA multilingual environmental glossary]

2. Detachment and movement of topsoil or soil material from the upper part of the profile, by the action of wind or running water, especially as a result of changes brought about by human activity, such as unsuitable or mismanaged agriculture.

(Source: BJGEO)

Conservation Tillage

A level of reduced tillage combined with one or more soil and water conservation practices designed to reduce loss of soil or water relative to conventional tillage. Such activities often take the form of non-inversion tillage that retains productive amounts of residue mulch on the surface.