

**EXPO
2021
DOHA
QATAR**

Green Desert
Better Environment



EXPO 2021 Doha, Qatar **“Green Desert, Better Environment”**

The theme of EXPO 2021 Doha, Qatar is “Green Desert, Better Environment”. The goal is to encourage, inspire and inform people about innovative solutions and reduction of desertification. Successful results require international cooperation around the same goals and key strategic solutions.

INTRODUCTION

Once upon a time, greening the desert was a challenge. Nowadays a green desert is possible. To achieve it and maintain it is an important and increasingly urgent topic, because it can be an answer to global water, energy, and food scarcity problems. Techniques that enable the sustainable cultivation of trees and crops in arid lands play an important role in reversing desertification problems evident around the world.

The Green Desert ideal has cultural, educational, economic, social and scientific aspects, combining traditional agricultural practices with modern and alternative techniques like hydroponics, permaculture and vermiculture, all in a sustainable manner. The greening of deserts is a sustainable project for irrigation and forestation of dry areas or regions near water sources like lakes, rivers, seas or oceans. Also, we need to promote the benefits of clean technologies like irrigation with natural water sources and renewable energy supplies. The Green Desert ideal cannot be attained without involving people, gaining social support and realizing cultural change. Without a change in the mindset of the people and their perspectives on the future, the sustainability of any endeavour would not be possible. Thus, the Green Desert concept entails modern agriculture based on technology and innovation, supported by enhanced environmental awareness, in order to attain sustainability.

THEME

Mankind has changed the balance of planet earth by living beyond its means. Global warming is one of today’s most acute problems, affecting every human being irrespective of age, gender, wealth or nationality. Since the age of industrialization, the natural balance has changed drastically until now it is beyond affordable limits. A major factor of today’s global warming is the consumption of fossil fuels, causing an increase in carbon dioxide (CO₂), methane and other greenhouse gases in the atmosphere. These hydrocarbons heat up the planet due to the greenhouse effect, triggering the interaction between Earth’s atmosphere and incoming radiation from the sun. Global warming is forecast to have devastating consequences not only for the climate of our planet but also for all living beings



It is expected to have dire consequences for planet earth, with climate change, loss of biodiversity and desertification.

Desertification is the process of land degradation in arid, semi-arid and sub-humid areas due to various factors including climatic variations and human activities. Desertification occurs when land originally of another type of biome turns into a desert biome due to factors such as overgrazing, urbanization, climate change, over-drafting of groundwater, deforestation, natural disasters and tillage practices. This transformation of biome results in persistent degradation of dryland and fragile ecosystems and loss of biodiversity. One third of the world's land surface is threatened by desertification. Across the world it affects the livelihoods of millions of people who depend on the benefits of ecosystems that drylands provide. The amount of land threatened by desertification increases by 12 million hectares each year, making it a global problem. As the land becomes more arid, it can no longer support the number of people it did in the past. As a result, massive numbers of rural people migrate to urban areas, causing not only an environmental problem but also an economic challenge.

SUBTHEMES

To achieve a green desert, people need to come together to exchange information, use technology and be innovative to transform agriculture and life style. If we can turn the desert into a greener place, we can help fight desertification. To this end, four subthemes are proposed:

- Modern Agriculture; providing innovation, research and scientific advancements to produce safe, sustainable and affordable food for the increasing population of the world.
- Technology & Innovation; a vehicle for future green solutions, while playing an important role in changing direction in the use of fossil fuels, creating solutions for urban industrial pollution and advancing alternatives for chemical-intensive agriculture.
- Environmental Awareness; a tool for encouraging the protection of natural resources, raising a sense of connection to the natural world and promoting sustainable development.
- Sustainability; is mans' common objective for balancing different needs along with awareness about economy, technology, environment and social sciences.

Modern Agriculture

Modern agriculture is the combination of traditional methods with modern technology to maintain efficient and sustainable production to meet the world's basic food needs while reducing the amount of natural resources consumed during the production process.

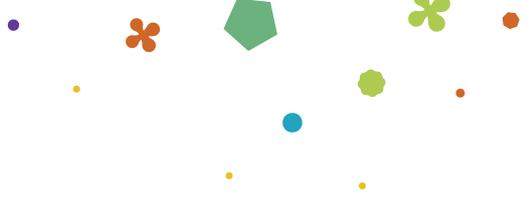
It embraces scientific data, innovation and farmers' experience to achieve efficiency and environmental conservation. The vital importance of food to physical, economic and cultural development, together with the importance of efficient, sustainable production makes modern techniques crucial.

This subtheme focuses on the topics defined below:

FARMERS' ROLE. The main difference between traditional and modern agriculture is the way farmers see themselves and their roles. It is vital to make them recognize the key part they have to play in fighting desertification.

EXPANDING KNOWLEDGE AND TECHNOLOGY. Institutional bridges between the centres of technological innovation and the actual workforce on the land is crucial to sustain efficient use of resources in the practice of agriculture.

COORDINATION SOLUTIONS. Exchange of information among the main stakeholders of modern agriculture (universities, governments, private sector, research institutions, farmers' cooperatives) requires new methods of coordination and cooperation.



Developing and sharing information on the techniques that integrate innovation into traditional wisdom will contribute to the prevention of further desertification

PERMACULTURE. Permaculture is a design system which assembles conceptual, material and strategic components in a pattern which benefits life in all its forms. It integrates land, resources, people and the environment through mutually beneficial synergies – imitating the no-waste, closed loop systems seen in diverse natural systems. Permaculture applies holistic solutions that are applicable in rural and urban contexts at all levels. Thus, by sharing examples of permaculture designs at EXPO 2021 Doha, Qatar will inspire many new practices.

Technology and Innovation

Technology and innovation in agriculture is comprised of various new techniques developed to sidestep constraints on farming productivity and environmental sustainability. They include digital innovations in hardware and software, vertical farming combined with hydroponics and aquaponics, and the adoption of alternative energy sources to decrease the agricultural footprint.

Agricultural literature indicates that the social rate of return to investments in agricultural technology and innovation has been generally high. Yet innovation for agriculture succeeds only by connecting farmers with farming research and technology.

We also welcome a change in the perceived association of farming as an exclusively rural pursuit. Urban farming, enhanced by technology and innovation, can confer a number of benefits, notably the reduction of our carbon footprint. The past decade has witnessed the transformation of urban farming into a stylish world-wide trend. Moreover, with the help of urban farming, 100 times more food could be produced compared with regular farming.

This subtheme focuses on four topics.

HANDS-ON EXPERIENCE. Practical and interactive workshops, farm walks, and on-farm demonstrations designed to help farmers put new technologies into practice.

RAINWATER HARVESTING. Harvested rainwater can be used for livestock and for irrigation. Rainwater collected from roofs can supplement the subsoil water level and increase urban greenery.

ALTERNATIVE ENERGY SOLUTIONS. It would be inconsistent to depend on fossil fuels in an endeavour to reverse desertification. The adoption of new systems, such as alternative energy sources and irrigation, is of the highest priority.

URBAN GREENERY AND URBAN FARMING. While urban greenery helps control air pollution, urban farming dramatically reduces the carbon footprint, not only by curbing the need for the transportation of food but also the efficient use of space, energy and water.

Environmental Awareness

Environmental awareness teaches our stakeholders, especially the general public, that the physical environment is fragile and indispensable, and it is in our capacity to fix the problems that threaten it by starting with the most immediate issues.

Why do we need to raise environmental awareness?

Sustainability requires a persistent change in the attitudes and behaviour of people. A persistent change is only possible by changing our priorities. People must be willing to change their life-styles and to do this they must believe in the Green Desert ideal.

An increase in environmental awareness will help to foster public support, hence it is an integral aspect of the Green Desert Better Environment theme.

In order to raise environmental awareness, the focus will be to:

-reconnect the public's ties with nature,

-remind people that they are an inseparable part of the natural world.

Our aim is to place special emphasis on the areas below:

AFFILIATION INSTEAD OF EDUCATION. Education is not sufficient in itself to convince people to change their habits. Affiliation is a strength that will allow us to join with others to create something more adaptive and more creative. Thus, we propose to replace education with affiliation through the process of the proposed exhibition.

FOODPRINT.

By FoodPrint, we understand that the most immediate problem facing us on a daily basis is the secure access to healthy food. The acuteness of this issue will sharply focus the public's attention. We aim to emphasize the reduction of food waste, the encouragement of healthy eating, support for sustainable agriculture, and a "start your own garden" programme.

PERMAGARDENING.

Community gardens afford an opportunity for the public to re-establish their connection with nature, whilst contributing to erosion control, recycling and sustainability. Moreover, permagardening can be applied in urban as well as rural areas.

Sustainability

Sustainability aims to maintain biodiversity and ecological balance, whilst acknowledging the need for civilisation to sustain its modern way of life.

This can only be achieved by balancing different needs at both local and global levels. It refers to our capacity to endure, as well as our commitment to bequeath a green future to our children. Thus, although sustainability involves passion for the future, it is a real concern for today. It is our responsibility to transform our life styles, business practices and governmental policies in ways that respect future generations by recognising and addressing global environmental problems.

This should lead us to work ceaselessly to create new technologies and innovative solutions so as to maintain public support for the holistic changes those new technologies will bring. We all need to agree on a redefinition of what is "modern" whilst reinventing traditional practices.

Technology and innovation should lead a transformation, working towards a greater adoption and enhancement of traditional rather than industrial agriculture.

THREE PILLARS OF SUSTAINABILITY RE-DEFINED UNDER THE THEME OF EXPO 2021 DOHA, QATAR

ECONOMIC – Invest in innovative agricultural technologies.

SOCIAL – Establish the connection of people with nature, to raise awareness.

ENVIRONMENTAL – Transformation of dry and arid land into agricultural areas and forests.

