

LOTUS DESING STUDIO

Green Cities of The Future



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INTRODUCTION

- ❖ *Information about Lotus Design Studio*
- ❖ *Natural resources and their types*
- ❖ *Declining natural resources and their impacts on our life*
- ❖ *How to deal with these problems as an individual and as a designer*
- ❖ *Case Study : GREEN OASIS GARDEN*
- ❖ *Conclusion*



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RHS SHOW GARDENS

'OUR FIRST HOME, OUR FIRST GARDEN', Hampton Court Palace Flower Show 2012

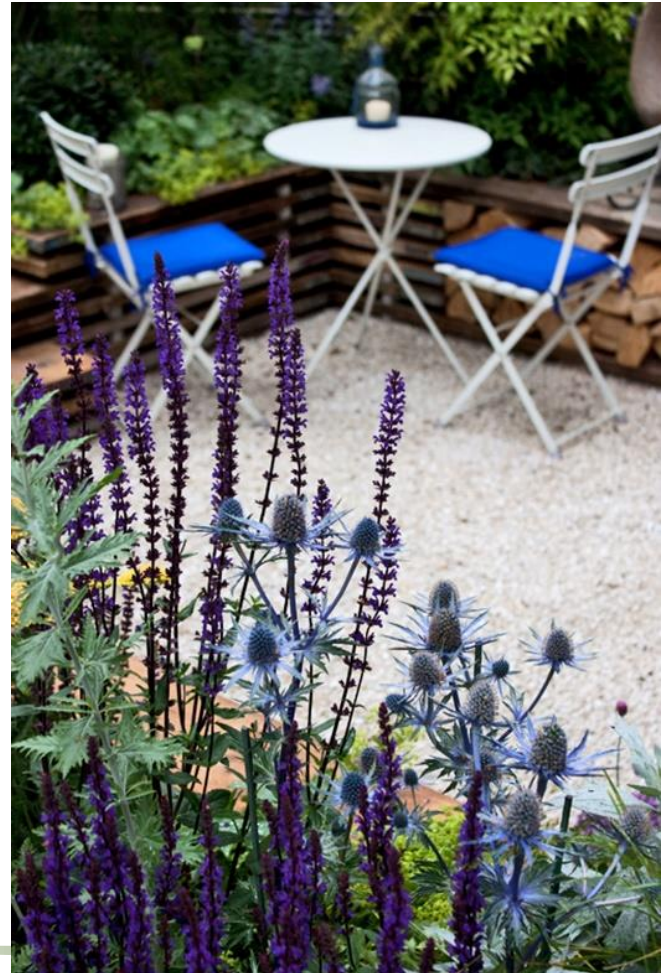
Gold Medal and Best in category

GOLD MEDAL



RHS SHOW GARDENS

‘OUR FIRST HOME, OUR FIRST GARDEN’, Hampton Court Palace Flower Show 2012
Gold Medal and Best in category



RHS SHOW GARDENS

‘WRATH- ERUPTION OF UNHEALED ANGER’, Hampton Court Palace Flower Show 2014

Gold Medal

GOLD MEDAL



RHS SHOW GARDENS

‘WRATH- ERUPTION OF UNHEALED ANGER’, Hampton Court Palace Flower Show 2014

Gold Medal



RHS SHOW GARDENS

'TURKISH GARDEN OF PARADISE', Hampton Court Palace Flower Show 2015

Gold Medal and Best in category

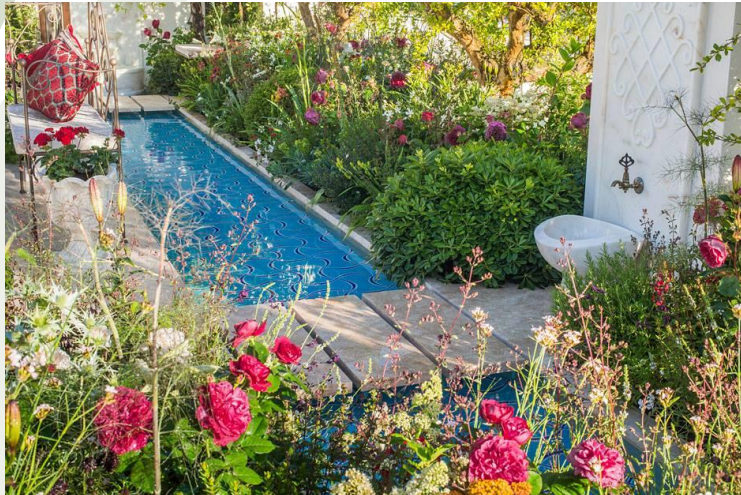
GOLD MEDAL



RHS SHOW GARDENS

'TURKISH GARDEN OF PARADISE', Hampton Court Palace Flower Show 2015

Gold Medal and Best in category



RHS SHOW GARDENS

‘HARTLEY BOTANIC TRADE STAND’, Chelsea Flower Show 2013 & 2014
Best Presentation Awards



PARKS

‘THE COMMONWEALTH PARK, GIBRALTAR’



PARKS

‘THE COMMONWEALTH PARK, GIBRALTAR’



PARKS

'THE COMMENTWEALTH PARK, GIBRALTAR'



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What are the natural resources?

Natural resources are those resources that occur within the environment in their original and natural form, undisturbed by humanity.

They take years to form without the intervention of humans. The Mother Earth is abundant with natural resources that develop on this planet using its surrounding environment.

While few of them are used for our survival like water, air, rest of them like coal, gas, oil are used for satisfying our daily needs.



Top 10 Natural Resources in the World

❖ WATER

❖ COAL

❖ AIR

❖ OIL

❖ NATURAL GAS

❖ PHOSPHORUS

❖ OTHER MINERALS

❖ IRON

❖ SOIL

❖ FOREST AND TIMBER

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Type of Natural Resources

❖ Renewable Resources (Living)

- Trees (Forest & Woodlands)
- Crops
- Livestock like fish

❖ Flow Resources

- Tides
- Solar Power
- Wind

❖ Non- Renewable Resources (non-living)

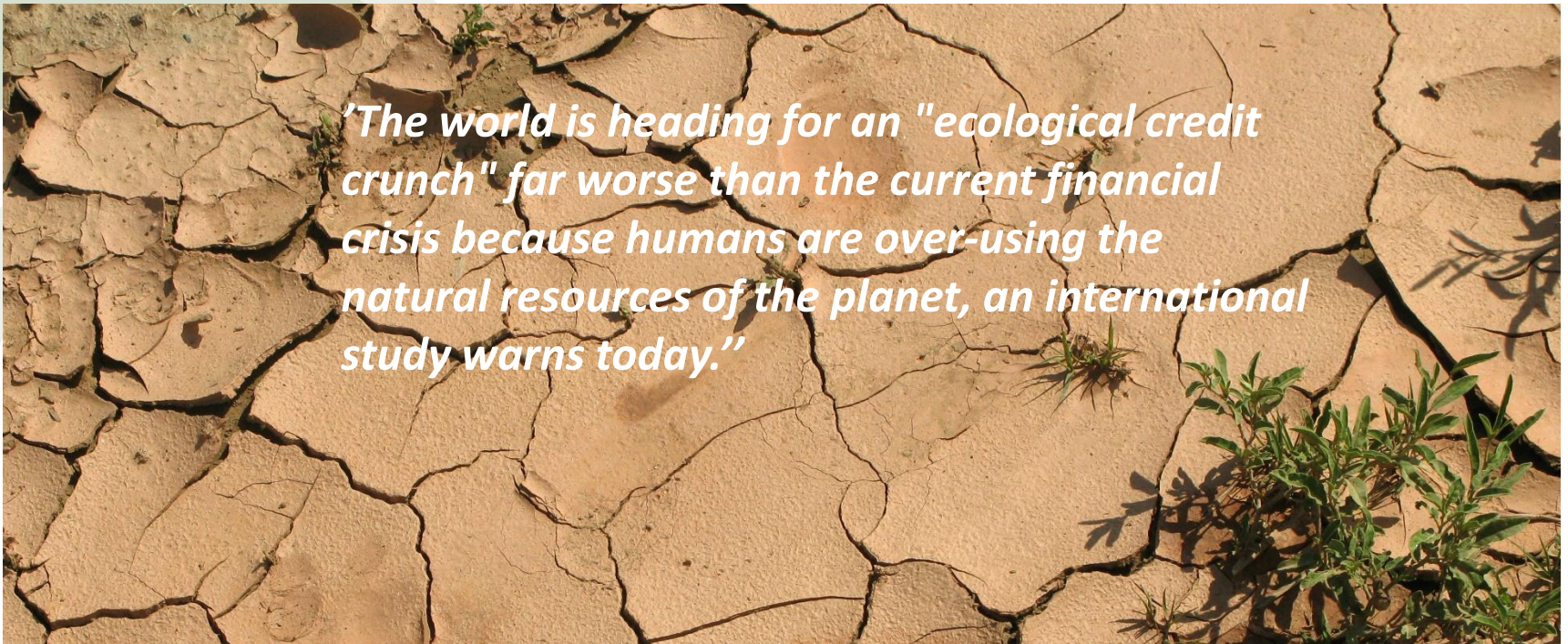
- Fossil-fuels
- Coal
- Petroleum

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Where are we with the natural resources?

Our current global population is 7.45 billion and growing. Earth's total resources are only good for 2 billion people at the current demand sustainably.

The way we're living, we are already using 2 to 3 times more of the Earth's natural resources than what is sustainable.



'The world is heading for an "ecological credit crunch" far worse than the current financial crisis because humans are over-using the natural resources of the planet, an international study warns today.'

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OUR NATURAL RESOURCES ARE RUNNING OUT!!!

What are the top 3 natural resources being depleted and what are the impacts?

WATER



OIL



FOREST



1. Water

What will we drink without water?

- ✓ Only 2.5% of the world's total water volume is fresh water. Of that 2.5%, 70% is frozen .
- ✓ The depletion of our water resources is more serious that the current oil depletion.
- ✓ There are substitutes for oil but nothing can **replace our drinking water.**

Causes: Increased irrigation, increased use in agriculture, roads and infrastructure prevent water seepage in the soil, rising temperatures.

Impacts: Drinking water shortage. Food Shortage. Famine.

2. Oil

Nothing can be moved, manufactured, transported, built, planted, mined or harvested without the liquid fuels that we get from petroleum.

- ✓ Oil accounts for **40% of all energy** we use.
- ✓ Environmental Investigation Agency's (EIA's) International Energy Outlook 2013 shows that we have enough Oil to last for **25 years**.

Causes: Industrial boom. Increased population. Wastage.

Impacts: Less Transportation. Smaller economies. Higher prices.

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3. Forests

- ✓ An estimated **18 million acres** of forests are destroyed each year.
- ✓ **Half of the world's forest** has been cleared.
- ✓ Deforestation contributes **12 to 17% of global greenhouse gas emissions annually.**

Causes: Urbanization, Illegal logging, Agriculture, Subsistence Farming.

Impacts: Soil erosion, Global Warming caused by the rise of greenhouse gases- Extinction of species and loss of biodiversity. Flooding and drought.

You can make a BIG DIFFERENCE!!

- ✓ **Grow your own fruit and vegetables** or **buy locally produced food** (to cut down on pollution caused by transporting goods from areas) .
- ✓ **Fit solar panels** to your home to provide solar water heating or solar electricity.
- ✓ **Use water butts** in your garden - a great way of saving and re-using water by installing a butt to collect rain water. It is estimated you can save up to **5,000 litres of water a year!**
- ✓ **Use a Composter.** Composting is often referred to as nature's way of recycling. By weight, it is estimated that kitchen and garden waste makes up about **30% of a household's rubbish.**

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You can make a BIG DIFFERENCE!!

- ✓ **Use reusable Bags;** For instance, friends of the Earth estimate that 17 billion plastic bags are given away by supermarkets every year in the UK - the equivalent to over 290 bags for every person in the UK! These bags are generally used once and then thrown away, ultimately polluting the environment.
- ✓ **Reduce carbon dioxide emissions** by buying energy efficient appliances.
- ✓ **Cycle, walk or use public transportation** whenever possible.
- ✓ **Save trees by going paperless** or by using only **recycled products**.
- ✓ **Turn off all appliances** when not in use.
- ✓ **Conserve Electricity.**
- ✓ **Fix leaky faucets and use recycled water** for flushing your toilet.

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How can you make a big difference as a **DESIGNER!!**

CASE STUDY

'GREEN OASIS GARDEN', EXPO 2016 ANTALYA, TURKEY



DAİB
ORTA ANADOLU
İHRACATÇI BİRLİKLERİ

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GREEN OASIS GARDEN, EXPO 2016 ANTALYA



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GREEN OASIS GARDEN, EXPO 2016 ANTALYA

Extensive Green Roof



- ✓ Lessens **the urban heat island effect**.
- ✓ Capturing **particulates and pollutants** in the air.
- ✓ Producing **oxygen**.
- ✓ Providing insulation to enable **energy saving**.
- ✓ Solar panels absorb the sun's rays to **generate electricity**.

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GREEN OASIS GARDEN, EXPO 2016 ANTALYA The Rain Gardens

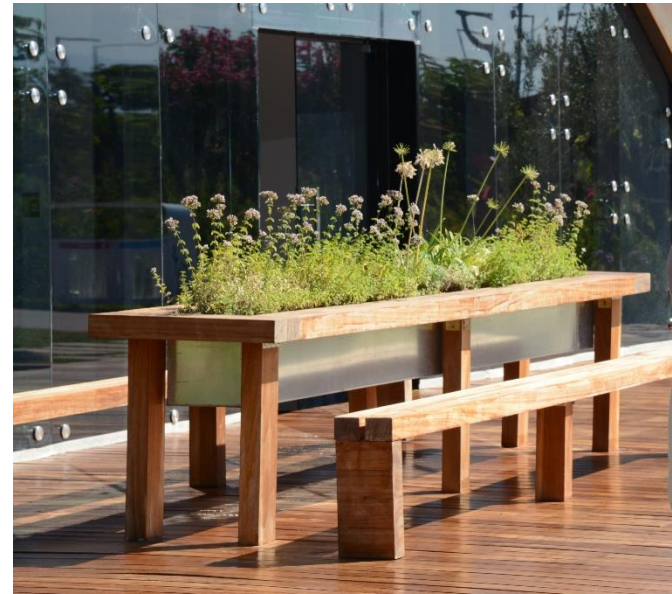


- ✓ Pollution control
- ✓ Flooding protection
- ✓ Habitat creation
- ✓ Water conservation

- ✓ Improve water quality
- ✓ Enhance sidewalk
- ✓ Protect rivers and streams

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GREEN OASIS GARDEN, EXPO 2016 ANTALYA The Planted Table



- ✓ **Enable food** to grow right where you eat it.
- ✓ A mix of edible green plants and fruits to **encourage healthier** and more **sustainable living**.
- ✓ **Demonstrating a way to grow food** at your home.

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GREEN OASIS GARDEN, EXPO 2016 ANTALYA The Insects Hotels



- ✓ The insect hotels **promote biodiversity** providing place for **hibernating insects** like ladybirds, beetles and butterflies.
- ✓ Providing a legion of beneficial insects to **pollinate our crops** and **prey on pests**.
- ✓ **Striking a balance in the kitchen garden**, nurturing the beneficial creatures so that they in turn take care of the undesirables.

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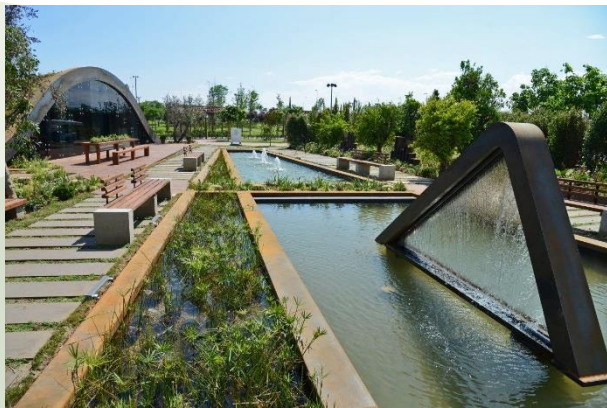
GREEN OASIS GARDEN, EXPO 2016 ANTALYA The Permeable Paving Surface



- ✓ Provides **sustainable drainage (SUDS)** to prevent flooding and storm water runoff.
- ✓ **Improve water quality.**
- ✓ **Reduction of overall irrigation demand.**
- ✓ **Local Heat Island Effects.**
- ✓ Provide **amenity and biodiversity.**

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GREEN OASIS GARDEN, EXPO 2016 ANTALYA The Seating Features



- ✓ Public spaces create **economic, social and environmental** value.
- ✓ Seats make **a space more accessible** to people who tire easily.
- ✓ Creating a physical space that **encourages social activity**.
- ✓ **Building stronger communities**. This helps to **bring down the social costs of crime**.
- ✓ Relaxing and enjoying the surroundings.

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GREEN OASIS GARDEN, EXPO 2016 ANTALYA The Water Features



- ✓ Combine water with the need for **recreation and nature** in the City.
- ✓ Design bio filtering wetlands as **functional and aesthetic solutions** to **surface water pollution**.
- ✓ In this garden, water fountains and ponds create a focal point, interaction, movement and **cooling function** in the hot climate.
- ✓ The aquatic planting along the edge of the pond creates a soften natural appearance and **habitat** for **amphibians, dragonflies** and **other aquatic insects**, etc.

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GREEN OASIS GARDEN, EXPO 2016 ANTALYA The Sculptures



- ✓ Public art is an interesting conversation between **art** and **landscape**.
- ✓ **Social offerings, openness** and **welcome-ness** and ,importantly, **the aesthetic of a place**.
- ✓ **A driver of attachment** for a **community** and the nexus for **gathering**.
- ✓ Striking vertical features as a focal point within a space.

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GREEN OASIS GARDEN, EXPO 2016 ANTALYA The Trees



- ✓ 21 new trees have been planted in the garden to provide a **canopy, shade** and **habitat for wildlife**.
- ✓ Tree planting includes **five Orchard trees** to provide **food** and **attract butterflies and other insects to enhance biodiversity** and **inspire visitors in harvesting of their own fruits**.

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GREEN OASIS GARDEN, EXPO 2016 ANTALYA

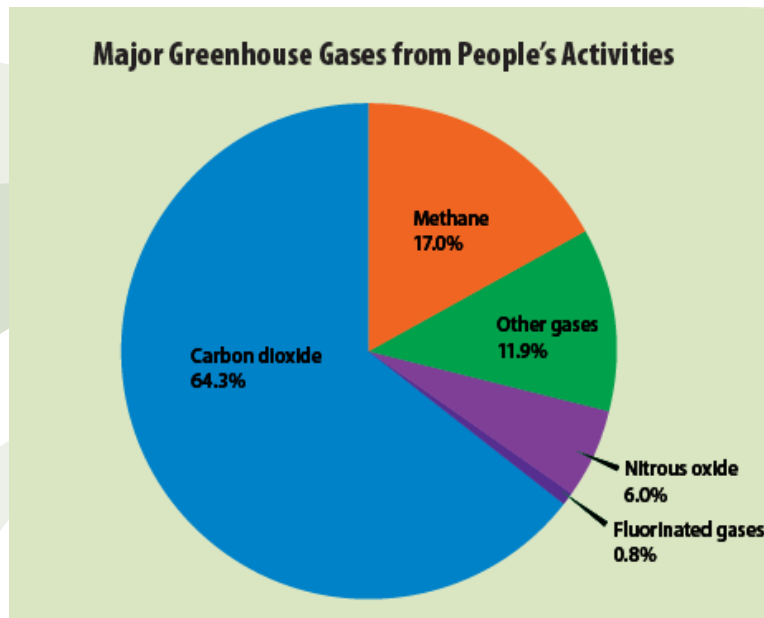
The Trees



- ✓ Trees **filter the air** and also **reduce heat island effect**.
- ✓ The term **“Heat Island”** describes built up areas that are hotter than nearby rural areas. **Heat islands** can **affect communities** by **increasing summertime peak energy demand, air conditioning costs, air pollution and greenhouse gas emissions, heat-related illness and mortality, and water quality**.

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GREEN OASIS GARDEN, EXPO 2016 ANTALYA The Trees



- ✓ **Greenhouse gases** trap heat in the atmosphere, which makes **the Earth warmer** - **Global warming**.
- ✓ **Carbon dioxide** is the most important greenhouse gas emitted by humans (64.3%), but several other gases contribute to climate change, too.

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GREEN OASIS GARDEN, EXPO 2016 ANTALYA The Trees



- ✓ Trees are very important because they **absorb CO₂**, **removing** and **storing the carbon** while **releasing the oxygen** back into the air.
- ✓ In one year, **an acre of mature trees absorbs the amount of CO₂** produced when you drive your car **26,000 miles** and **provide enough oxygen for 18 people**.
- ✓ Trees absorb **odours and pollutants gases** (nitrogen oxides, ammonia, sulfur dioxide and ozone) and **filter particulates out of the air** by trapping them on **their leaves and bark**.

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GREEN OASIS GARDEN, EXPO 2016 ANTALYA Shrubs & Perennials



- ✓ **A wide variety of pollen and nectar-rich shrubs and perennials** have been used in the garden to **attract bees, butterflies and other insects** which are essential for the **pollination of plants**.
- ✓ The proposed planting scheme contains some of the exported plants from Antalya to the world to promote international plants growers . For instance *Asparagus officinalis*.

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GREEN OASIS GARDEN, EXPO 2016 ANTALYA Shrubs & Perennials



- ✓ Combinations of native and non-native plants enhance **the urban setting** while giving a sense of the native character.
- ✓ Add to the opportunities to **experience flora and fauna** in the places where people live and work.

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GREEN OASIS GARDEN, EXPO 2016 ANTALYA Shrubs & Perennials



- ✓ In new developments, **integrate wildlife habitats in architecture and public and private green** by using plant species and vegetation structures with **added value for biodiversity**.
- ✓ In existing developments, **replace pavement where possible to create habitats for urban birds, bees and butterflies** using a **diverse mix of selected plants and flowers**.

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GREEN OASIS GARDEN, EXPO 2016 ANTALYA

Conclusion

- ✓ **The green infrastructure** in this garden helping to reduce **the urban heat island effect**.
- ✓ **All plants and trees** in the garden **remove dust and gaseous pollution and volatile organic compounds** from the air.
- ✓ **The orchard trees and the planted table** provide food and attract butterflies and other insects to **enhance biodiversity** and inspire visitors in **harvesting of their own fruits**.
- ✓ **The solar panels** on the green roof **generate electricity** for the air condition and the water cooler in the building. **The green roof** provides insulation to enable **energy saving**. The building becomes **less dependent on the fuel**.

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GREEN OASIS GARDEN, EXPO 2016 ANTALYA

Conclusion

- ✓ **The insect hotels** allow insects to **hibernate** such as ladybirds and butterflies to **enhance biodiversity** within the space.
- ✓ The rain gardens **create a sustainable drainage (SUDS), habitat** and provide **water conservation**.
- ✓ **The water features** provide **cooling function** in the hot climate. This reduces the urban heat island effect.
- ✓ The aquatic planting **clean the water** and **create habitat** for the aquatic insects.

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EXPO2016
ANTALYA

“A Green Life for Future Generations ”

*“I heard the
laughter of my
nephew
throughout the
garden / the city
bringing with it
hopes for a
greener
world....”*



Thank You



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www.lotusdesignstudio.co.uk