

## DUBAI: SUSTAINABLE DEVELOPMENT IN THE DESERT?

by Lindsay Frost

DUBAI is part of the United Arab Emirates (UAE, founded in 1971), located on the south-east coast of the Gulf in the Middle East (Figure 1). It has a small area (under 4,000 km<sup>2</sup>), consisting mostly of the Rub al-Khali desert. Consequently it is very hot in the summer (average high temperature 39°C) and very warm in the winter (average high temperature 23°C) with very low annual rainfall (average 130 mm) (Figure 2). There are typical desert features such as sand dunes, wadis, oases, and early summer sandstorms (*shamal*). In the shallow offshore waters there are salt marshes (*sabhka*) and coral islands. High evaporation rates from the shallow sea increase humidity levels in Dubai. The physical geography of Dubai makes it a difficult place to live, and so it is surprising that the population has grown (Figure 3).

Dubai benefited historically from its geographical position (Figure 1) near the maritime entrance to the Gulf where trading vessels from the Indian subcontinent and Africa entered, and those from Arabia and Iran departed. Dubai Creek provided a natural harbour and port for ships. Today the port handles over 700,000 tonnes of cargo a year.

There were overland trading routes through Dubai too, linking Asia and Africa, with camel trains transporting goods. Local people survived by growing crops in the oases, fishing or pearl collecting in the Gulf, or nomadic herding of camels, sheep and goats. This way of life was sustainable because there were a relatively small

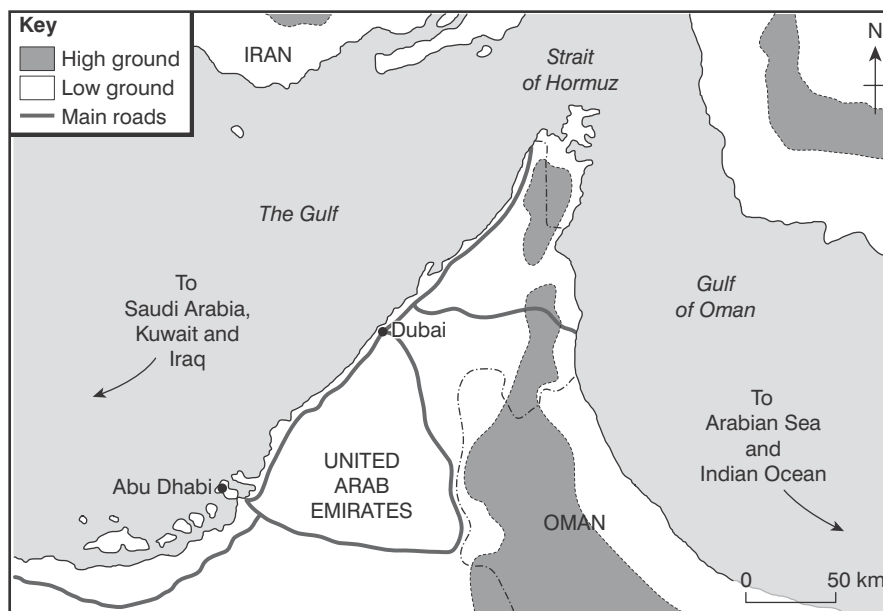


Figure 1: Location of Dubai

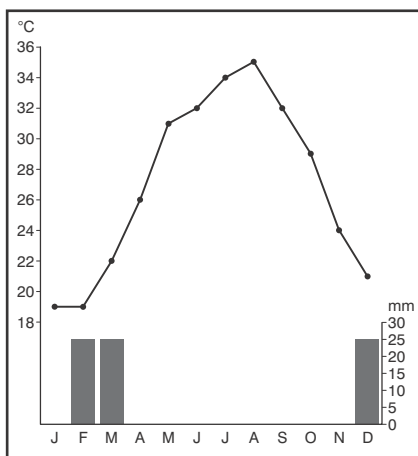


Figure 2: Climate graph for Dubai (average figures)

number of people to support (in 1975 there were only 180,000), trade was sufficient to provide money or goods, and small-scale fishing and farming provided food (without using damaging intensive techniques).

Everything changed when oil was discovered. Production started in the 1970s, and when OPEC increased oil prices the

Year	Population size (millions)	% of population male
1975	0.18	–
1995	0.67	–
2003	1.20	69.4
2005	1.20	73.4
2006	1.37	75.2
2007	1.48	75.9
2009	1.72	–
2017	4.00	–
2020	5.20	–

Figure 3: Dubai population statistics

Source: Government of Dubai, Department of Tourism and Commerce Marketing

rulers (*sheikhs*) of Dubai became very rich. In 2005 the GDP per capita of Dubai was \$31,140 but now only about 3% of GDP comes from oil, although further expansion is planned before the oil runs out (around 2020). The oil money has been used to diversify the economy and provide modern top-quality



Figure 4: Burj Al Arab hotel and environs

Source: Miss Ashley Pinney

services (e.g. healthcare). The **tourist industry** has become important (18% of GDP) with over 6 million visitors a year. Hotels cater for ‘prestige tourism’, including the world’s only seven-star hotel (Burj al Arab) (Figure 4), an international airport (37.4 million passengers handled in 2008), golf clubs (Emirates), Dubai

Sports City (60,000-seat outdoor stadium, 10,000-seat indoor stadium), camel and horse racing, yacht clubs (Dubai Creek), theme park (Dubai Land – due to open in 2010 with seven different themed worlds, 200,000 visitors expected a day), and indoor shopping centres (Al Ghurair) (Figure 5).

The safe, hospitable environment, plus reliable weather, tropical seas, desert sands, rich culture, and a location halfway between China and Europe, attracts tourists. **Secondary industry** has concentrated on expensive specialised goods that can be transported by air (e.g. cosmetics, medicines, electronics, jewellery); Jebel Ali cargo airport will be the world’s largest cargo airport when it is completed. Business parks, **free trade zones** (e.g. Silicon Oasis) and specialised zones (Internet and Media City, and Healthcare City) have been set up. A huge **construction boom**, including offshore islands, symbolic of palm trees, and a world map of over 300 islands (Figure 5), has attracted buyers from all over the

world. New housing, blocks of flats and 9,600 km of roads have been built, including the Burj Dubai, the world’s tallest building. Between 2007 and 2008 land sales increased by 47.5%.

The Dubai government is driving this diversification, supported by investments by private companies, including **foreign direct investment (FDI)**. From 2000 the growth of GDP per year had been around 13% until the mid-2008 global **recession**, then growth slowed to 3.5% – still healthy compared with other countries. Many see this slowdown as a blessing, as they believed that Dubai was growing too fast. Greater productivity and innovation in tourism, professional services, trade, transport and storage, and construction puts Dubai in a strong position compared with the rest of the world in a recession. An extra 880,000 workers may be required by 2015 to achieve sustained growth, especially at a higher skills level (25% in this category), giving a total workforce of 1.73 million.

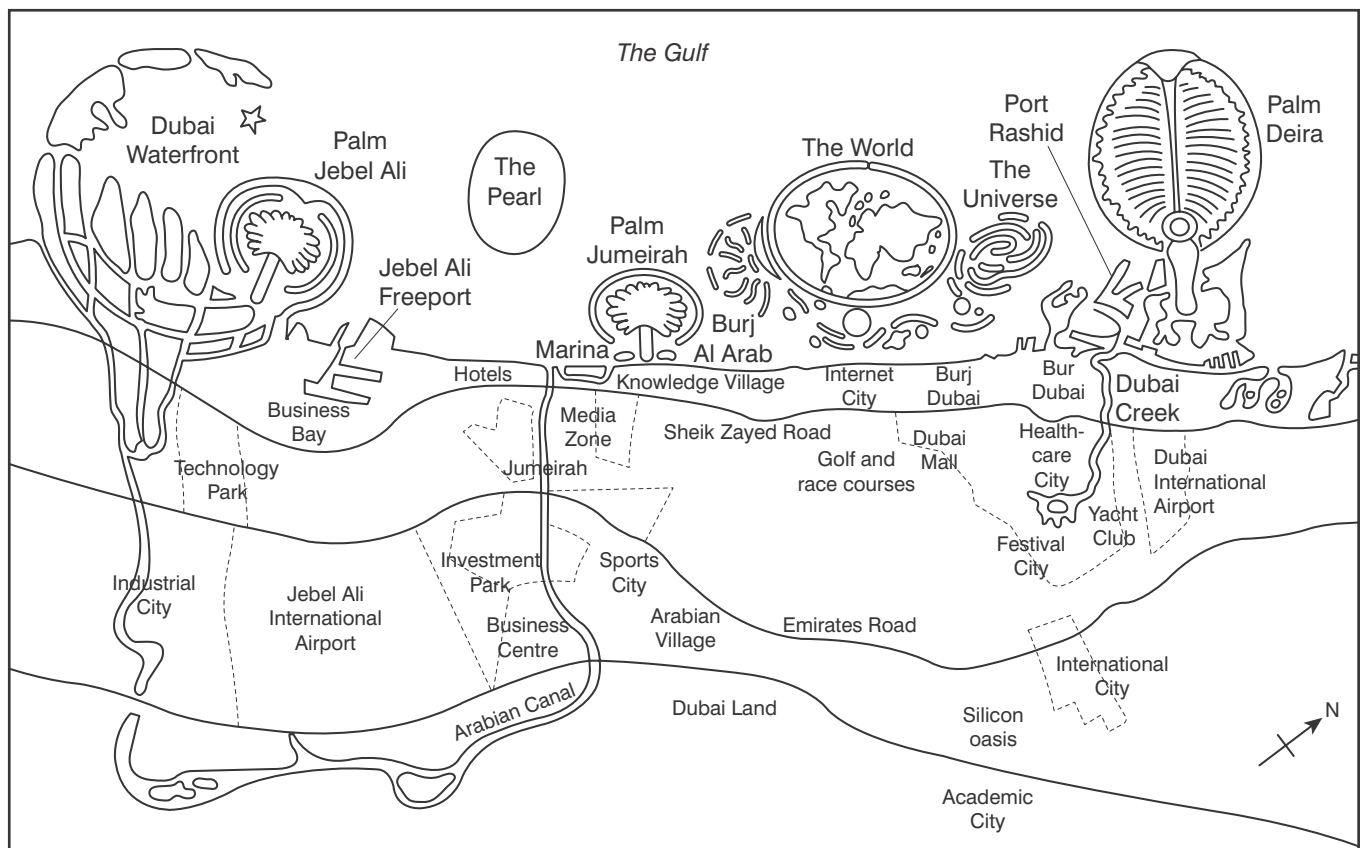


Figure 5: The future shape of Dubai

So money can be made in a desert! But is the Dubai concept sustainable? The **Environmental Sustainability Index (ESI)** and the **Environmental Performance Index (EPI)** which consider, for example, pollution levels and management of the environment, placed Dubai in the ‘below average’ category worldwide, and 14th out of 18 desert countries. Only nine EPI targets were fully met. **Ecological footprints** are high in Dubai (e.g. 12 ha are required to support each person, and 9 ha to absorb carbon emissions – both higher than for the USA).

## Issues

- **Water:** Desert countries have to manage water carefully, and the overuse of water can make ecosystems vulnerable. In the 1960s groundwater was used but population growth was rapid, and demand may rise even more, partly because of golf courses and irrigation water. Quality is low as regulations on pesticide use are poor. Desalination plants are a solution (powered by natural gas), with additional reservoirs (*mushrif*). A target has been set to reduce water consumption per capita by 36% by 2014.
- **Construction:** Rapid building work created more quarrying, which is unsightly, and the dust affects local people and wildlife. Building also requires expensive imports of materials. The recession has slowed investment in property, and by March 2009 the Dubai government admitted that the property market had been badly hit. Major projects (e.g. Palm Deira and the Arabian Canal) have been delayed and some building projects and infrastructure development may be halted. However, speculation has been replaced with direct purchasing by richer people, and a re-evaluation of infrastructure projects should produce greater efficiency.
- **Natural environment:** The shallow Gulf waters (e.g. coral reefs) have been damaged

2006 rank for exports	Country	Value (US\$ million)	2006 rank for imports	Country	Value (US\$ million)
1	India	1.508	1	China	7.683
2	Pakistan	0.330	2	India	6.338
3	Iran	0.228	3	USA	4.918
4	USA	0.181	4	Japan	4.071
5	Kuwait	0.179	5	Germany	4.071
6	China	0.135	6	UK	3.298

Figure 6: Dubai imports and exports, 2006

Source: Government of Dubai, Department of Tourism and Commerce Marketing

by fishing, oil spills, sewage discharges, and construction of the artificial islands. Intense trawling takes place here, and marine protection and conservation is lacking. Sustainability of the natural environment has yet to be achieved, although seabirds are colonising the artificial islands. Global sea-level rise will also threaten the lifespan of offshore construction. There is an initiative (Blue Communities) to make offshore developments more environmentally friendly. Only 3.4% of Dubai is ‘green’ land, and the government has set a target of increasing this to 8%.

- **Immigrant workers:** Workers have arrived from all over the world, including skilled people from Britain who are attracted by no taxes and good healthcare. ‘Healthcare tourists’ also come from high-income countries. Unskilled workers are largely from India, Bangladesh, Sri Lanka and Pakistan, attracted by higher wages (\$4 a day), but visas are tied to jobs and working conditions can be poor (pay withheld, unions illegal, poor health and safety, very long working hours). In 2007, 7% of businesses inspected displayed violations of workers’ rights or conditions. There are similar problems for females from South-east Asia, who arrive to be nannies or domestic servants. There is a gender imbalance, with the majority of immigrants being male aged between 25 and 40. The birth rate among immigrants is also currently much higher than the death rate, which is also contributing to the

rapid population increase (Figure 3). Local people are concerned about the influence that foreign workers (200 nationalities) may have on the culture of Dubai, although most live in their own small communities and do not mix. New laws are being made by the government to reduce the exploitation of workers.

- **Trade and tourism:** The balance of trade is uneven (Figure 6), with more imports than exports, although tourism and re-exports help to balance things. Tourism may decline due to the world recession, and it often varies according to the latest fashion. However, Dubai is a new place to visit and so will do well compared with its competitors, especially with new attractions still being added. Ecotourism is also a possible attraction at the coast or on offshore islands.
- **Economic recession:** The financial institutions in Dubai are affected by the world banking crisis. Dubai banks have taken measures to protect themselves against outside forces by reducing risky investments and links.
- **Infrastructure:** Roads, public transport and utilities are struggling to keep up with the rapid growth. In 2006, 13.6 million tonnes of waste was collected, equivalent to 9.94 tonnes per person! There are too many cars, with 213,000 new vehicles registered in 2006. Air pollution is high in particulates (sulphur dioxide and carbon dioxide). Renewable energy is seen as a way of meeting the 15% increase in energy demand.



# Activities

- 1 What difficulties do people in Dubai face due to the physical geography of the emirate?
- 2 Which types of renewable energy would be most suitable for Dubai?
- 3 (a) What does 'nomadic' mean?  
(b) Why is the nomadic way of life sustainable in a desert?
- 4 Why does Dubai need to diversify its economy?
- 5 (a) Why has tourism increased rapidly in Dubai?  
(b) Which modern 'man-made wonders' are helping this growth?  
(c) Is this tourist growth helping sustainability?

6 Study the images of Dubai seen on the front cover of a tourist brochure (Figure 7). What do these tell you about Dubai and what a tourist can do there?

7 Obtain some tourist brochures for holidays in Dubai. Plan a one-week holiday there for two adults.  
(a) Considering the climate information (Figure 2), which is the best time of year to go there?  
(b) What are the costs at this time of year (check the extras!).  
(c) What activities would you plan to do, and which places would you visit, and why?

8 Produce a fact file for the Burj Dubai.

9 How have free trade zones helped the economy of Dubai?

Type of vehicle	Number registered
Light vehicles (e.g. cars)	170,951
Buses	5,256
Light trucks	16,304
Heavy trucks	8,287
Heavy mechanical vehicles	312
Motorcycles	3,498

Figure 8: Vehicles registered in Dubai, 2006

• Treatment of foreign workers	• Population structure
• Economic recession	• Variability of tourism
• Oil running out	• International terrorism
• Fresh water supplies	• Water pollution
• Providing energy	• Air pollution (e.g. carbon dioxide emissions)
• Over-development	• Building offshore

Figure 9: Possible threats to sustainability in Dubai

10 Describe and explain the push and pull factors involved in the migrations of Britons and Indians to Dubai.

11 A worrying fact is the increase in the number of vehicles in Dubai. Study Figure 8.

- (a) Produce a pictograph to show the information.
- (b) What are the benefits of this method of data presentation?

12 Study list of threats to Dubai's sustainability set out in Figure 9.

- (a) Evaluate the severity of each threat and put them into a rank order from worst to least worst.
- (b) Explain your rank order.

13 Suggest how Dubai could manage its future to ensure that it is fully sustainable.

14 'Dubai was more sustainable in the past than it is today.'

- (a) To what extent do you agree with this statement?
- (b) Explain your answer. (Consider natural, social, and economic environments.)

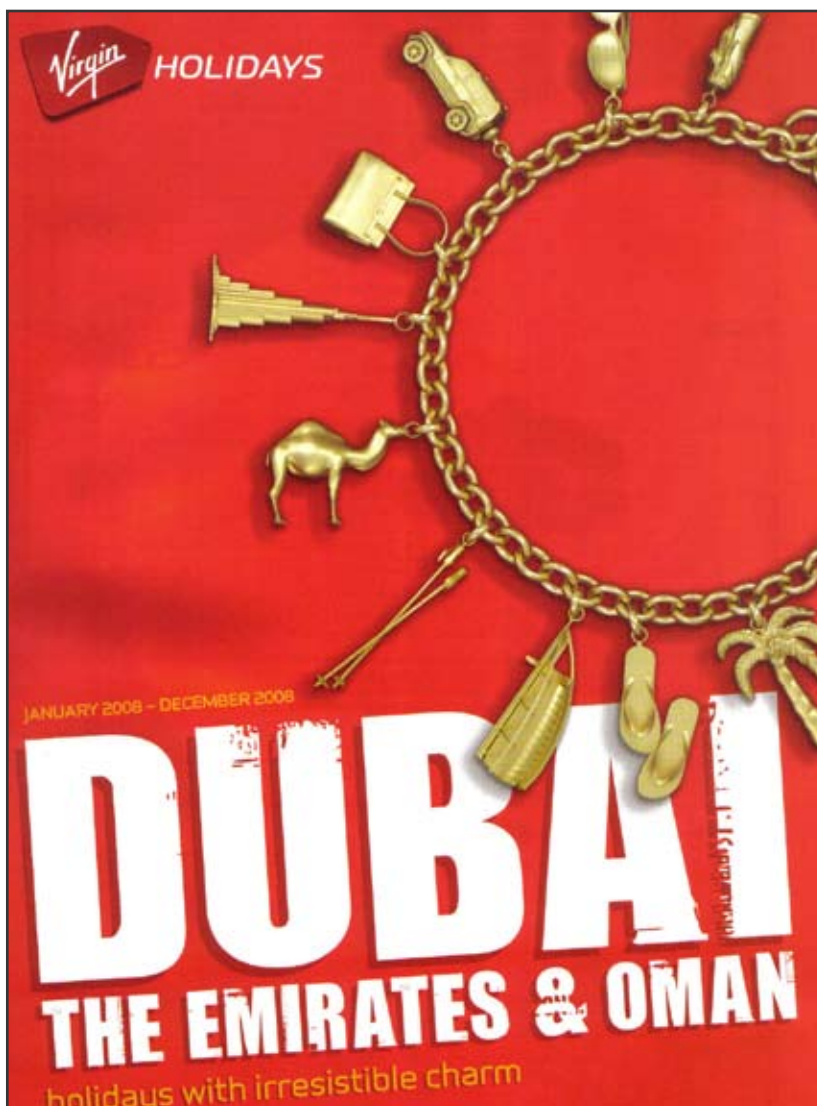


Figure 7: Holiday brochure for Dubai

Source: Virgin Holidays