

An aerial night photograph of Dubai, United Arab Emirates. The image shows a dense urban landscape with numerous lights from buildings and streets. A prominent feature is a tall, modern skyscraper with a distinctive, illuminated, pointed top. To the left, a multi-lane highway is visible, with light trails from cars indicating traffic flow. The sky is dark, and the overall scene is illuminated by the city's artificial lights.

how sustainable is dubai?

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Dubai's current image raises many questions about its economic, social, and environmental future.

DUBAI, ONE OF THE SEVEN EMIRATES THAT CONSTITUTE the United Arab Emirates (UAE), is attracting international attention today as the commercial and tourist hub of the Middle East. It has a number of iconic structures, such as Burj Al Arab Hotel and the Palm Islands, as well as economic zones, such as Dubai Internet City, Dubai Media City, Dubai Academic City, and Dubailand.

Credited with signifying stability, security, and peace in the region, Dubai has experienced an economic and architectural boom only in the past 15 years. Other Persian Gulf countries, at first suspicious of Dubai's success, are now following its example. Yet, Dubai's image raises many questions about its economic, social, and environmental future.

The economic and construction boom Dubai is witnessing today is not being driven locally, but by investors from overseas under the guidance of the emirate's government, following the vision of ruler Sheikh Mohammed bin Rashid Al Maktoum, who is said to run the country like a Fortune 500 company. Dubai nationals make up less than 20 percent of the country's population—the rest are expatriates who work in Dubai—a situation seen as presenting a problem for the emirate's sustainability. Once all the developments—residential, commercial, leisure, and mixed use—are completed and inhabited by mostly non-UAE nationals, observers say it will be interesting to see how the diverse mix of expatriates, with their own customs and values, blends with the much more conservative Dubai nationals. Although Dubai is considered the most forward thinking and liberal city in the Middle East, it is still likely to face challenges related to this mix of cultures, observers say.

The UAE ranks 41st in terms of human development among 177 member countries of the United Nations, according to the 2005 *Human Development Index Report*, compiled by the United Nations Development Program. Because of its economic growth, the UAE has attracted large numbers of people from all over the world, particularly from Asia and Europe, who come to live, work, do business, and invest in the country. The UAE has urbanized rapidly over a comparatively short time, with prominent cities like Dubai expanding several times beyond their original size in the 1980s and 1990s. Today, Dubai features prominently on the global map of emerging cities, and is now listed by some experts among places considered "world cities."

Sustainable development strategies in Dubai are conceived and implemented by different agencies, such as the Dubai Municipality, the Roads and Transport Authority (RTA), the Federal Environment Agency, and the ministries of Economy, Environment and Water, Health, Education, and Energy. Each autonomously plans, invests in, and executes activities in its specialty area.

Dubai's economic success today is primarily attributed to:

▷ the leadership and vision of various leaders, such as the heads

of the Dubai Municipality, the RTA, and the ministries, following the lead provided by Sheikh Mohammed;

▷ the advanced level of administrative decentralization and coordination;

▷ quick decision making and execution;

▷ the ability to fund developments through various means and channels;

▷ the slow and steady transition from an oil-based to a knowledge-based economy, with emphasis on services and education; and

▷ Brand Dubai, an image-creation effort promoted through events such as the Dubai Shopping Festival and Dubai Summer Surprises, which has increased the perception of the emirate as the safest destination in the Middle East for tourism, commerce, and investment.

Along with success come challenges of sustainability. Among the challenges facing Dubai are the following:

▷ inefficient transportation, road congestion, and traffic accidents;

▷ housing affordability, infrastructure needs, and a rising cost of living;

▷ a manpower shortage and an inability to attract the best talent;

▷ a need to integrate different cultures and lifestyles;

▷ educational needs; and

▷ pollution and waste management problems.

Transportation

Dubai is facing huge problems concerning traffic congestion, noise and air pollution, and road safety. Traffic snarls are common. Sheikh Zayed Road, one of the city's main thoroughfares, for example, is subject to traffic jams at all hours of the day; the areas of Deira and Bur Dubai face congestion as well. Dubai Municipality reports that 470,000 vehicles are registered in Dubai; this is in addition to the vehicles driven by residents of other emirates such as Sharjah and Abu Dhabi who travel to Dubai for work. A minimum of two trips per day translates to almost 1 million vehicles on the roads—a figure very close to the present Dubai population of 1.3 million. It is estimated that by 2020, Dubai's population will climb to 4 million and the number of car trips to a staggering 13.1 million per day. While the population of Dubai grows at an average annual rate of 6.4 percent, the number of cars is rising an average of 10 percent per year, compared with a worldwide average of 2 to 3 percent.

The number of traffic accidents and fatalities rose sharply in the first half of 2006, resulting in 156 deaths—or a death every 28 hours, compared with a death every 36 hours in 2005.

Dubai's road congestion can be attributed to the affordability of cars, comparatively cheap fuel, and the almost negligible availability of public transport. The main objectives of the RTA are to integrate and streamline the city's bus and water transportation systems, as well as the rail system, now under construction; charge a single, flat fare for

their use; and make the transportation systems accessible to all potential users. Currently, 417 peak weekday bus schedules are run on 62 routes covering over 104,000 miles (168,000 km) in Dubai and nearby emirates, carrying about 240,000 people per day—representing only 20 percent of Dubai's entire population.

The solution to Dubai's congestion is widely believed to be the Dubai Metro rail system, a project RTA is presently constructing at a reported cost of \$4.2 billion. The project, commissioned in November 2005, is slated for completion in phases in 2009 and 2010, at which time it is expected to transport 1.85 million passengers daily. The Metro rail is expected to ease congestion, cut travel time, reduce pollution, and enhance mobility within the city by serving all strategic areas of Dubai, with room provided for expansion.

Dubai also intends to implement policies such as toll roads to persuade people not to buy cars, a goal achieved by Singapore. At the same time, land use strategies would need to provide for more mixed-use development with a housing element to enable people to live closer to work and retail/entertainment areas, and thus reduce long-distance travel.

Housing, Infrastructure, and Cost of Living

As the Dubai Municipality prepares for a population of 5 million by 2020, a main challenge seems to be the rising cost of living. Over 2005 and 2006, rents increased 10 percent to as much as 100 percent; an official 15 percent cap on rent increases was imposed until the end of 2006 to reduce the frenzy. Rent increases have caused a number of expatriates—particularly white-collar executives—to leave Dubai. Fuel prices also have risen 30 percent since late 2005, leading to ripple effects in costs for other services and goods. These cost increases hurt the ability of companies to retain employees.

In 2001, Dubai pioneered the concept of "freehold" property development, whereby expatriate residents of the UAE, as well as residents elsewhere in the world, could purchase property in Dubai. This was seen as a landmark move and has given residents, business owners, and investors increased confidence in the city.

The government continues to invest in infrastructure. Dubai Municipality has indicated that its five-year outlook includes \$2 billion for roads and bridges, including a new 12-lane bridge across Dubai Creek; \$300 million for drainage and irrigation projects; and \$700 million for public projects.



To stabilize rents and accommodate population growth, Dubai needs to expand its housing inventory. According to a report by Deutsche Bank published December 8, 2006, in the *Emirates Today* newspaper, 92,000 residential units were to be ready for occupancy by 2007 and an additional 123,000 units will be ready by 2008. Many have long speculated that the property market may crash. However, the fact that almost 1 million people a year are expected to join the Dubai population through 2010 may alone stabilize the buoyant residential property markets.

Employment

Dubai is facing major manpower issues. Expatriates comprise almost 80 percent of Dubai's workforce. There is a shortage of skills at the lower level and potentially a skewed social demographic. The annual *Cost of Living Dubai Report*, released in December by online recruitment firm GulfTalent.com, stated that high inflation and meager salary raises have resulted in expatriates, primarily blue-collar workers, going to more attractive work destinations or back to their home countries, particularly among those people from the Asian subcontinent. However, the report also stated that Dubai continues to be



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stopover—a place where people spend a few years while making money before returning to their homeland.

Education

A comprehensive network of government schools, colleges, and universities has been established throughout Dubai providing free primary, secondary, and higher education to UAE nationals. For expatriates, 85 private foreign schools and more than 30 private universities offer a high-quality education from British, American, Indian, and Pakistani curricula. Arabic is the language of instruction in UAE schools and colleges; English is the main language of instruction for the other schools and universities. Dubai has one of the highest rates of admission to higher education in the Middle East: 90 percent of secondary-school graduates enter a university, which has led to increased investment in institutions of higher education. However, the Ministry of Education's 2020 strategy for future educational development in Dubai and the UAE takes into account only schooling for UAE nationals.

There are still more jobs than qualified workers, a situation that is not expected to improve in the short term. The key to solving this problem, observers say, is to retain expatriate talent and to reform the region's education sector. The quality of education is high for nationals, but they need to be persuaded to take up studies. Now, however, a new breed of young nationals is emerging that is motivated to take up careers in government and the private sector. For the long term, the solution lies in sustained efforts to properly educate the local nationals who are country's future. This would be in line with Dubai's strategy of transforming itself into a knowledge-based economy.

Pollution and Waste Management

Dubai's air pollution has continually worsened, with vehicles contributing almost 80 percent of the pollution.

the preferred destination for white-collar executives across the Middle East.

On the flipside, the new freehold property law may transform Dubai from being a temporary destination to a place where people settle indefinitely. This could lead to greater staff retention because employees would not be forced to seek higher-paying jobs to afford their annual rent increases.

Cultural Integration

Dubai, with residents from nearly 200 countries, has always been seen as a melting pot of creeds and nationalities. But most people come to Dubai for work and feel little need to interact with those of different backgrounds. This is where the problem starts. Some observers point out that UAE nationals are difficult to know because of cultural differences, whereas the UAE nationals blame the expatriates for not making any effort to get to know them, for not speaking Arabic, and for not taking an interest in their culture, tradition, and values. An additional factor dividing the population is the substantially higher pay offered to employees from particular countries of origin. Until efforts are made to integrate the various cultures present, most observers believe that Dubai will continue to be seen as a

Between 1999 and 2003, vehicle emissions violations have caused pollution levels to exceed UAE government limits by 13 to 25 percent.

The UAE has one of the world's highest levels of domestic waste. Per-capita household waste has reached an annual average of 1,598 pounds (725 kg) in Dubai and 1,609 pounds (730 kg) in Abu Dhabi. In the United States, the average is 1,565 pounds (710 kg); in Australia, 1,521 pounds (690 kg); and in the U.K., 661 pounds (300 kg). Additional refuse comes from street litter, gardens, and from the waste dumped on beaches and in the sea. This has imposed a heavy burden on the municipalities. The problem is only partly solved by converting organic waste into agricultural fertilizer. Some waste, such as paper, glass, and tin cans, can be recycled, and special incinerators have been set up to dispose of medical waste.

To become **sustainable** in the long run, Dubai needs to manage responsibly its present and plan **efficiently** for its **future**.

A law aimed at reducing air pollution was passed in March 1999. Developed in consultation with the municipalities, the regulations limit excessive use of harmful fuels. New regulations are also under discussion for controlling the use of leaded fuel. The UAE and Dubai enforce strict laws governing the use of chemical insecticides in agriculture in order to protect public health and reduce environmental damage. The import of 57 chemical insecticides has been banned; only products already licensed for use in agriculture in the United States, Canada, Japan, and the EU are allowed. The UAE and Dubai also have refused to license the manufacture of chemical insecticides within the UAE. Wherever possible, natural control methods are employed. In Dubai, for example, chemical pesticides were recently replaced with a product made from the common local neem tree that has the properties of a natural pesticide. The plant's seeds are powdered and mixed with water so that the active ingredient can be sprayed in parks and other landscaped areas.

The Persian Gulf is a sensitive marine ecosystem. The effects of industrial pollution and oil spills on the marine environment require coastal conservation. The major sources of sea pollution are ships; land-based sources; dumping from ships and aircraft; exploration

and exploitation of the seabed, the continental shelf, and the subsoil; and other human activities. In the past couple of years, Dubai has been aggressive about safeguarding the gulf's marine life and not allowing the release of industrial waste directly into the sea.

While a consensus exists that sustainable urban development is a desirable goal that countries, regions, cities, and towns should commit to, considerable confusion remains on how to translate this broad objective into national and local strategies. Sustainable development comes about through planning, proper execution, and control of the built environment. For Dubai to become more sustainable, it needs to improve city planning, increase the social cohesion of its diverse residents, find ways to better attract and retain talent, provide efficient public transit, and provide affordable housing. To become sustainable in the long run, Dubai needs to manage responsibly its present and plan efficiently for its future—before it is too late. **U**

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