



## INFRASTRUCTURE

### URBAN DEVELOPMENT

THE PREVIOUS SECTION FEATURED the UAE's dynamic economic environment, highlighting the country's liberal trade and financial policies and the economic diversification strategy that has brought increasing prosperity to the country. None of this would be possible without massive investment in a sophisticated physical infrastructure comprising efficient road networks, superlative telecommunications facilities and freely available, affordable electricity and water. In addition, links with the outside world through the UAE's first-class seaports and airports, a vital component of trade and tourism, are constantly being upgraded. At the same time, excellent educational and health facilities and the provision of modern housing required to meet the needs of a rapidly increasing population (from around 250,000 in 1971 to an estimated 5 million in 2005 – a national census was due to be undertaken at the end of the year) guarantees a high quality of life for UAE residents. Today, over 75 per cent of the population live in a handful of cities, all of which are experiencing a new wave of infrastructure development.

#### ABU DHABI

The population of Abu Dhabi City is expected to increase to at least 1.25 million by 2020, from a mere 140,000 in 1980. This steep rise has led to a high demand for housing, recreational and other facilities. As a result, total developed building space, estimated at 46 million square metres in 2000, is likely to increase to over 95 million square metres by 2020.

In the light of this rapid growth, Vision 2020, which was drawn up with the cooperation of the United Nations Development Programme (UNDP), sets out a long-term, socio-economic strategy as part of a major development plan for Abu Dhabi City, the emirate's Western Region, and Abu Dhabi's islands and coastal areas. The plan focuses on updating infrastructure, providing housing, especially in new residential areas such as Khalifa City A and B on the Abu Dhabi–Dubai Road and Madinat Zayed on the road to Liwa, and easing traffic congestion for the city's rapidly growing population. Equally important, however, is equipping the emirate with a tourism and recreational infrastructure equal to the demands of the twenty-first century traveller.

The rise in population has led to a huge increase in the number of vehicles on Abu Dhabi's roads, especially over the past five years. This is nowhere more evident than in Abu Dhabi City where the concentration of commercial, educational and health centres in the city centre and traffic to and from Mina (Port) Zayed have contributed to congestion. To meet the challenge that this presents, Abu Dhabi Municipality has updated the transportation element of its 20-year plan. This involves vastly improved road and bridge networks in Greater Abu Dhabi, including the islands of Sadiyat, Hodairiyat, Mishairib and Lulu and the onshore satellite towns of Bani Yas, Shahama and Al Wathba, as well as major redevelopment of the road network on Abu Dhabi Island, including the Corniche and internal roads such as Hamdan, Khalifa, Al Salam, Falah and Hazza streets.

In addition, the transport plan envisages revamping the public transport system, involving the construction of a 12-kilometre circular railway line with 19 stops, the provision of additional buses (along with air-conditioned bus stops), and restrictions on taxis in the central area. The overall objective is to increase the number of people using public transport from 0.5 per cent to 5 per cent of the population.

The long winding Corniche overlooking the blue waters of the Gulf, where many of the five-star hotels are situated, is easily accessible from the city centre. Here, an impressive new road was opened in February 2005. The highway, part of the extensive renovations of the Corniche area, covers a 4.5-kilometre stretch from Al Khaleej Al Arabi Street, midway between the Hilton and Sheraton hotels, to Al Salam Street. The final stretch from Al Khaleej Al Arabi interchange to Mina Zayed was completed in late 2005.

The Corniche project, costing over Dh800 million (US\$218 million), involved the reclamation of more than 700,000 square metres of land and the construction of several roads, bridges, tunnels and parking bays, as well as tiled and imaginatively decorated pedestrian underpasses. These will significantly ease traffic congestion, but the recreational aspects of the ambitious plan will also ensure that the sweeping seaside promenade will be a lasting landmark in the capital city.

The revamped Corniche recreational area is divided into three themed zones linked by several pedestrian paths. Each of the zones contains tailor-made facilities: for example the Family Zone will include specialised playgrounds and open spaces suitable for children; the Central Zone will have a lakeside park, formal gardens, a refurbished fountain and large plazas; and the Heritage Zone will feature indigenous cultural elements. Mosques, an amphitheatre, courtyards, pavilions, exhibition spaces and picnic areas will also be part of the Corniche Park. The whole area is being planted with 2500 fully grown date palms and more than 6000 other trees and shrubs.

Extensive land reclamation was also a feature of another impressive project, the multi-billion-dirham extension of the Breakwater and the Marina Mall complex at the Hilton end of the Corniche, a very attractive residential, leisure and retail area.



The Breakwater will be joined to the nearby man-made Lulu Island, overlooking the Corniche, which is being developed by the Abu Dhabi government-funded General Corporation for Development and Investment of Lulu Island. Plans for the island's dune-filled landscape include a wildlife reserve, Disney-style fun parks, hotels, restaurants, an aquarium and a museum.

Dominating the southern end of the Corniche, Emirates Palace, a magnificent luxurious hotel and massive conference centre set amongst swaying date palms and overlooking a pristine white sandy beach, opened to the public in 2005. This will be a huge asset not only for general tourism but for the booming conferences and exhibitions sector.

The city's tallest building to date, the recently completed 142-metre ADIA Towers, a 42-storey structure, will provide much-needed office space in downtown Abu Dhabi. Work is also in full swing on Capital Plaza – a residential and commercial project that also includes a six-star hotel. Another major project, Bainunah Towers-II, is being built next to the British Embassy. This 22-storey, Dh160 million, multi-purpose tower will add 74,000 square metres of commercial space on the upmarket new Corniche Road. In addition, the structural work on a cluster of five multi-storied buildings near the Central Bank building is nearing completion.

Another landmark structure is set to dominate the Abu Dhabi skyline: the 255-metre Stellar Tower, a tribute to the late Sheikh Zayed bin Sultan Al Nahyan, will house shops, offices, a restaurant and a 300-bed hotel. The spectacular building, which will be operational by 2009, will have a wide base with conference and leisure facilities surrounding a large octagonal atrium, a narrow stem and a wide top.

Aldar Properties, a vehicle for real estate investment, development and management that was launched in April 2005 on the Abu Dhabi Securities Market (ADSM) after a highly successful IPO, is involved in a number of substantial projects in Abu Dhabi. The most significant of these is the construction of a major new suburb that will form a gateway to Abu Dhabi north-east of the main island on the Abu Dhabi–Dubai Highway, in the direction of Abu Dhabi's International Airport. Capitalising on the emirate's extensive coastline and many unspoilt islands, the Dh54 billion Al Raha Beach Development Project will be spread over an area of 12 million square metres, 6.8 million square metres of which will be reclaimed land. Plans envisage the construction of 60 towers and extensive low-rise developments on the seashore to accommodate a population of 120,000. The new city district, a lifestyle destination embracing residential, commercial, cultural, entertainment and public amenities, will be integrated with Khalifa A through road and related transport links. A unique feature will be the provision of a water taxi service serving all parts of Abu Dhabi Island as well as outlying islands such as Sadiyat (recently acquired by Abu Dhabi Tourism Authority) and the International Airport. Reclamation work, which will take approximately two years, commenced in September 2005. This project has been particularly popular with UAE nationals,

so much so that phase two of Al Raha Gardens development had to be sold through an audited random selection process due to the unprecedented number of national applicants who registered to purchase property there.

Aldar's current property portfolio includes other major developments within Abu Dhabi Emirate, such as the extensive redevelopment of the Central Market in Abu Dhabi, the Mubadala Development Company/ Environmental Agency Headquarter Building in Abu Dhabi, Al Jimi Mall Expansion in Al Ain, Jebel Hafeet Resort in Jebel Hafit, Al Ain, and the Al Mudheef Urban Regeneration Scheme in Al Mudheef.

Aldar commenced work in 2005 on its major redevelopment of the city centre with plans to replace the atmospheric but run-down Abu Dhabi souq with a new air-conditioned bazaar based on traditional Arab design. The new souq along Hamdan Street will be complimented by a mixed-use office, hotel, residential, retail and entertainment complex. The first phase of the project necessitated the demolition of the marketplace straddling Hamdan and Khalifa streets, known as the 'old' souq, part of which was destroyed by fire early in 2003. The second stage focuses on the market between Khalifa Street and the Corniche.

Two other malls are also under construction in Abu Dhabi: the Dh200 million Khalidiya Mall covering an area of 52,000 square metres and the 30,000-square-metres, Dh165 million Al Raha Beach Mall. Retail capacity will also be increased in Abu Dhabi when major construction projects such as the residential and commercial Six Towers project, a high-rise, multi-purpose development nearing completion in the Al Bateen area, come on-stream.

Reem Investments, an investment company launched in June 2005, has also announced ambitious plans to develop 25 per cent or 1.8 million square metres of Reem Island, investing Dh20 billion in the construction of residential and commercial buildings. The development will have an extensive waterfront, overlooking the city of Abu Dhabi. Once completed, the project will have the potential to house approximately 80,000 people.

In a move which will have considerable impact on further development in the capital, HH Sheikh Khalifa promulgated a new property law in August 2005, permitting UAE nationals to own and transfer land and property, whilst allowing for the extension of leasehold property rights to non-nationals in designated investment areas. Under the law, foreigners can own property in investment areas in Abu Dhabi under a 99-year land title agreement or a renewable 50-year surface ownership deal. Subsequently, Abu Dhabi Executive Council Decision No. 23 identified the Al Raha Beach development and the Al Reem Island development as real estate investment areas where expatriates are permitted to invest.

The Department of Municipalities and Agriculture/Abu Dhabi Municipality completed work on the Dh230 million Khalifa Park in early 2005. The 50-hectare park, overlooking Al Qurm Beach Corniche on the East Ring Road, has extensive themed gardens inspired by Arabic and Islamic architecture, in addition to

educational gardens reflecting the culture and heritage of many countries. It also has two mosques, private parties' halls, open theatres, playgrounds, fountains, artificial lakes, waterfalls and canals. All these attractions can be viewed either by boat or from a train in a tour that takes about 20 minutes.

Meanwhile, the Department of Municipalities and Agriculture continues to work on the much-needed Dh900 million (US\$245 million) Abu Dhabi Third Crossing Project, phase three of which entails the construction of an 850-metre bridge supporting a four-lane highway over the Maqta channel, almost parallel to the existing Maqta Bridge (the second crossing is at Mussafah Bridge). An approach bridge over Umm al-Nar Roundabout was built in phase one, whilst phase two involved the construction of approach roads and an interchange; the entire project is due to be completed in 2007.

The Abu Dhabi Executive Council has also entrusted the Department of Municipalities and Agriculture with finishing construction work on the Sheikh Zayed Grand Mosque, the largest in the Gulf. Located at the entrance to Abu Dhabi City, the Dh1.5 billion mosque, which will have a capacity of 40,000, is expected to be the region's main landmark. The reinforced concrete shell was completed in May 2002 and the next phase of the project, entailing marble cladding the whole structure, as well as intricate Islamic decoration and carving and extensive landscaping, is scheduled for completion in November 2006.

An ambitious all-round development plan for the Western Region of Abu Dhabi has also been set in motion in 2005. This is aimed at transforming the region – accounting for 70 per cent of the total UAE land area and 83 per cent of the emirate of Abu Dhabi – into a model of sustainable economic and social progress. The Western Region has six main urban centres, including Madinat Zayed, Mirfa, Ghayathi, Sila'a, Liwa and the island of Delma, and it is home to an estimated 1.2 million people. The Western Region Development Committee (WRDC) is overseeing the wide-ranging social and economic development plans which will be implemented by the new Western Region Municipality.

## DUBAI

Ambitious mixed-use urban developments featuring luxury residences, hotels and office blocks, huge shopping malls and imaginative entertainment complexes are rapidly changing the face of Dubai emirate and are putting the Dubai property market on the world stage. The catalyst for much of this expansion was the emirate's decision to allow non-nationals to purchase freehold property. In addition, the emirate is developing major commercial and industrial zones such as Jebel Ali Airport City (see below). All of this unprecedented expansion necessitates a virtual reworking of the emirate's infrastructure.

Nakheel's development of The Palm, Jumeirah, a massive man-made island in the shape of a palm linked to the mainland by a bridge, is expected to be completed

by early 2006 and that of The Palm, Jebel Ali by the end of 2007. Reclamation work is progressing rapidly on The Palm, Deira. This, the last of the three ambitious residential island projects, is connected to mainland Dubai by a stretch of reclaimed land close to Al Hamriyah Port. Reclamation is also well under way on The World project. Due for completion in 2008, this cluster of 300 artificial islands in the shape of the seven continents is located 4 kilometres off the coast between Burj Al Arab and Port Rashid.

Total investment by Nakheel in Dubai's booming property sector, including the above projects, Jumeirah Islands, International City, Ibn Battuta Mall and Discovery Gardens, exceeds Dh92 billion to date. This is set to increase dramatically in the near future since Nakheel has been working on a spectacular new project for over a year: a new company, Dubai Waterfront (DWC), has been launched to develop an 81-million-square-metre, water-themed, mixed-use destination 35 kilometres south west of Dubai City on the border with Abu Dhabi. Up to 750,000 people will live in Dubai Waterfront's ten districts or diversified zones incorporating 250 master-planned communities and a downtown area, Madinat Al Arab. The first phase will take five years to complete, commencing in 2006. Unlike other Dubai projects where the government has been involved in developing roads, power and water facilities, Dubai Waterfront's basic infrastructure will be developed by DWC.

### *Downtown Dubai*

In April 2005, a syndicate of three UAE banks, Mashreqbank, Emirates Bank International and Abu Dhabi Commercial Bank, signed an agreement to provide the required contracting finance for the consortium chosen to construct EMAAR's iconic Burj Dubai Tower, valued at Dh3.2 billion (US\$869 million) and soon to become the world's tallest building. Due for completion by end of 2008, the Burj Dubai Tower will be the centrepiece of the 500-acre, US\$8 billion 'Downtown Dubai' development. EMAAR has also been instrumental in a major re-shaping of the outskirts of Dubai with residential and leisure projects such as Arabian Ranches and Dubai Marina.

### *New Shopping Malls*

Dubai's property developers have focused on the fact that the UAE is conveniently located amidst 3.2 billion consumers from countries such as Iran, India, Pakistan and other Middle East states. In particular, estimates by industry experts that the Emirates' retail business will be worth US\$50 billion (Dh183.5 billion) by 2010 have encouraged a revitalisation of this sector. EMAAR properties' Dubai Mall, with a gross leasable area of 351,000 square metres in the new 'Downtown Dubai', is just one of the mega-malls planned for Dubai. Mall of Arabia to be located in Dubailand is destined to be the largest in Dubai. Majid Al Futtaim's 223,000-square-metres, Dh3 billion Mall of the Emirates, is already operational.

Superlative retail is not the only experience on offer in these malls. Leisure facilities will also be second to none. For example, The Middle East's first indoor ski resort was opened in September 2005 at Mall of the Emirates.

#### *Dubai Festival City*

Work is progressing at Dubai Festival City on the superstructure of the Festival Centre, the City's 2.42 million-square-metre centrepiece that is located on the banks of Dubai Creek. The Festival Centre will feature more than 400 shops and 70 restaurants and cafes spread across four themed pavilions on the waterfront. The first phase of the Festival Centre, the retail park, featuring a number of international flagship stores, opened in November 2005. Construction of the final component, a 12-cinema complex, is due to begin in the first quarter of 2006. The Festival Centre is situated around the 150-berth Festival Marina. In the meantime, construction work on the Al Badia golf course clubhouse will be completed by 2006.

#### *Dubailand*

When it is completed in 2020 Dubailand will have 279 million square metres of facilities, including 50 themed entertainment, retail, and sports parks, double the size of Disneyworld. It will house 300,000 residents and cater to more than 200,000 visitors daily. The first phase of the Dh50 billion (US\$13.62 billion) project will be opened in 2008. In the meantime, the Dubai government is investing more than Dh3 billion in infrastructure.

Groundwork on Dubai Sports City (DSC), the world's first integrated purpose-built sports city and a major component of Dubailand, commenced in mid-2005. DSC encompasses 46.5 million square metres of sporting facilities, four stadia, sports academies, residential and commercial real estate, hotels, entertainment outlets, international schools, a medical centre and a shopping mall. The total development cost for the DSC component of Dubailand will be Dh7.34 billion (US\$2 billion).

In 2005, Dubai Development and Investment Authority (DDIA), the promoters of Dubailand, signed an agreement to set up the Dh5.5 billion (US\$1.5 billion) 'Falcon City of Wonders'. The falcon-shaped project is spread over an area of 4 million square metres and is divided into five overlapped phases, with the first phase commencing in the first quarter of 2006. Falcon City of Wonders will contain commercial, residential, educational, entertainment and leisure amenities built as replicas of famous international attractions such as the Pyramids, the Hanging Gardens of Babylon, the Eiffel Tower, the Taj Mahal and the Leaning Tower of Pisa.

Plans for Dubailand's Dh7.2 billion (US\$1.96 billion) 'City of Arabia' were unveiled in April 2005. The development will include a 930,000-square-metre mall, a dinosaur theme park inhabited by 100 life-size animatronic dinosaurs, a cluster of towers and residential and commercial areas. The 46,500-square-metre 'Restless



Planet', set to open in 2008, will be developed in collaboration with the Natural History Museum of London.

It was also announced in 2005 that work will commence early in the new year on the region's most extensive themed resort to date. 'Aqua Dunya', costing Dh7 billion (US\$1.9 billion) to develop, will cover an area of 744,000 square metres. Opening in 2008, it will have over 36 wet and dry rides, adventure islands, a luxury hotel in the form of a cruise ship and 3400 residential apartments.

#### *Financial Centre*

Dubai International Financial Centre (DIFC), which, it is hoped, will place Dubai alongside Singapore, Frankfurt and Hong Kong on the world's financial markets, is being built as an integrated city-centre concept on 110 acres near the Emirates Towers Hotel. Forty-five per cent of DIFC real estate development will be completed by the end of 2006, while the remainder is due for completion by the end of the decade. DIFC is but one of a wide range of purpose-built commercial and industrial areas, such as the massive new Jebel Ali Airport City (see below), that are rapidly changing the face of the city.

#### *Transport*

Dubai City's population of an estimated 1.086 million at the beginning of 2005 is expected to reach 3 million in 2020, and studies indicate that the number of vehicles on Dubai's already congested roads will triple in the near future. The unprecedented scale of development outlined above is also putting increased pressure on the system. Dubai Municipality's annual budget exceeds Dh1.28 billion (US\$350 million), with approximately 90 per cent allocated to infrastructure development. The emirate plans to invest over Dh22 billion (US\$6 billion) in infrastructure-related projects in the medium term: Dh16.5 billion (US\$4.5 billion) is earmarked for the light rail transit (LRT) development, around Dh1.83 billion (US\$500 million) will be spent on roads and bridges, Dh1.1 billion (US\$300 million) on drainage and irrigation and Dh2.56 billion (US\$700 million) on general projects.

Dubai's road network is under continuous expansion with over 20 major new projects under construction or recently completed, including a 1.5-kilometre tunnel under the airport and a new 12-lane bridge across Dubai Creek. Work on the Dh388 million bridge project began in February 2005. This third bridge is intended to take the pressure off Sheikh Zayed Road, Al Garhoud Bridge, Maktoum Bridge and the Shindagha Tunnel. A fifth lane will be added on both sides of Sheikh Zayed Road from the World Trade Centre to Al Manara Interchange, and a new network of roads and two interchanges, being built at a total cost of Dh611 million, will provide access to The Palm, Jumeirah and adjacent developments. Other approved projects include the expansion of Al Awir Road into four lanes in both directions, which

should significantly increase traffic-flow on this major arterial road. Both sides of the road and their surroundings have witnessed tremendous development over the past few years, including the construction of a Dh200 million Central Vegetable and Fruit Market, Dubai International City and the Used Car Complex.

Developments at Jebel Ali also necessitate a reworking of traffic plans. When completed, Jebel Ali Airport City (JAAC) will host 900,000 people. With Jebel Ali International Airport (JXB) destined to handle 120 million passengers per year, and Dubai Logistics City (DLC), the world's first integrated logistics and multi-modal transport platform, at its core, Jebel Ali Airport City's considerable traffic requirements must be streamlined with Dubai's overall future transportation needs.

Investment in public transport is a major component of Dubai's plans for the future. This service will be vastly improved once the high-tech, driverless, light rail transit (LRT) comes on-stream. Dubai Municipality will now finance the entire project instead of a previously planned 10 per cent. In May 2005 a contract worth Dh12.45 billion was signed with Dubai Rapid Link (DURL), a consortium of four companies contracted to build the LRT. The consortium also won a Dh1.88 billion contract to carry out maintenance of the project for 15 years. The project will be constructed in two phases over a period of 55 months with phase one taking 49 months and the overlapping phase two requiring 35 months. About 14 per cent of the total civil engineering work is to be carried out underground.

#### NORTHERN EMIRATES

Although they are not experiencing quite the same population pressures as Abu Dhabi and Dubai, the Northern Emirates of Sharjah, and, to a lesser extent Ajman, Umm al-Qaiwain, Ra's al-Khaimah and Fujairah, are all developing their infrastructure to facilitate residential and tourist development. In addition, the Federal Government continues to invest money on infrastructure projects in the Northern Emirates, especially roads, housing, electricity and telecommunications.

The Sharjah Directorate of Public Works is constructing a new Corniche at Sharjah Creek as part of a major transformation of industrial areas for residential and corporate use. This is where most of the government departments will be based. Traffic congestion will be alleviated by additional parking on the Corniche and the expansion of King Abdul Aziz Road, which will be linked with the new Corniche.

Phase one of the 19-kilometre-long ring road project was inaugurated in June 2005. This Dh350 million section runs from the Sharjah-Dubai border right up to the border with Ajman Emirate. Phase two, costing Dh450 million, including the necessary intersection flyovers, will be completed in 2007.

Furthermore, over Dh600 million (US\$163.48) in investment is expected in several new projects, including two new shopping malls and six hotels that are in various stages of construction. This is in addition to Dh2 billion (US\$545 million) spent on shopping centres, including the Sahara Centre and the Sharjah Mega Mall.

Two new shopping malls, Al Safer Mall, Down Town Mall, and a new wing with 20 additional shops at the Sharjah Mega Mall were opened in 2005.

In mid-May 2005 the founding stones were laid for three residential areas in Al Suweih, Al Rahmaniya and Al Juwaizi. In addition, the first phase of Emirates Industrial City, one of the largest industrial projects in Sharjah, will be completed in 2006. Located in the Saja'a district of Sharjah along the Dubai Ring Road on an area of 7.7 million square metres, the Industrial City will have eight sectors accommodating over 3000 medium and light industrial ventures, as well as commercial enterprises and residential areas.

Al Hanoo Holding Company has also announced the Dh18 billion Nujoom Islands project, a residential, commercial and tourist venture on 5.58 million square metres near Hamriyah village on the north-eastern coast of Sharjah.

Major expansion projects are also planned in Umm al-Qaiwain, most notably EMAAR's development of the Dh12 billion Umm al-Qaiwain Marina and Tameer Investment Holdings' plans for a new township costing more than Dh30 billion. The new city, to be named Madinat Al Salaam (the City of Peace), will be implemented over three phases on an area of 204.6 million square metres in Al Surra neighbourhood along the Emirates Highway. Construction of phase one, including basic infrastructure, a shopping mall and 15,000 residential units, will commence at the end of 2005. Tameer Holdings are also involved in the development of Umm al-Qaiwain's Dh150 million UAE Industrial Project.

Ra's al-Khaimah, sandwiched between mountains and sea, plans to rebuild the old city and reclaim land and develop beachfront for housing, industrial and tourism projects. The emirate announced in 2003 that it was entering the freehold property business with the launch of Noor, a Dh3.67 billion (US\$1 billion) tourism project that will develop a new 850-hectare reclaimed area. Noor forms part of the emirate's 2015 structural plan, which also includes projects such as the Ra's al-Khaimah-Sharjah Ring Road, Al Hamra Fort Resort, Al Murjan Island and Khor al-Qurm (Jazerah al-Hamra) resort development. Work on the massive, beautifully sited, Dh1 billion Al Hamra project, which will have 1200 residential units, an 18-hole golf course and a marina, commenced in 2004. The Egyptian-based Orascom Hotels and Development (OHD) has also launched 'The Cove', a pioneering project focusing on the development of 50 acres of untouched beach property on Ra's al-Khaimah's coastline.

RAK Properties, the real estate development company set up by the Investment and Development Office of Ra's al-Khaimah, launched its Dh1.1 billion IPO at the end of March 2005. Out of the total capital funding of Dh2 billion, 45 per cent was invested by the company's founders, including Ra's al-Khaimah government, while 55 per cent is being funded through the IPO.

The first phase of Ra's al-Khaimah's masterplan was approved in June 2005: 9.7 per cent of the land included in the plan will be devoted to industrial ventures.



## WATER AND ELECTRICITY

Total installed electricity generating capacity in the UAE amounted to 12,800 megawatts (MW) at the end of 2004. This will increase to 19,400 MW by 2010 to meet the 6 to 7 per cent annual growth rate in demand dictated by the ever-escalating needs of industry and private consumers.

Approximately 97 per cent of production is fuelled by natural gas and the remaining 3 per cent (primarily in the Northern Emirates) is produced by diesel generation or steam turbines. The emirates of Abu Dhabi, Dubai and Sharjah are responsible for 90 per cent of capacity, with 14 federal plants in the smaller Northern Emirates accounting for the remaining 10 per cent.

Abu Dhabi, which has the largest capacity and the highest growth in the industry, dominates electricity production in the UAE. Dubai, too, has raised its share of capacity, but is constrained by lack of gas. It has been attempting to make up the shortfall by importing gas from Sharjah since 1986, and from Abu Dhabi since 2001. Dubai is due to start importing natural gas from Qatar in late 2006. This will be transported via Dolphin's 370-kilometre export pipeline to a terminal at Taweelah in Abu Dhabi, from where it will be piped to the centres of use, such as Fujairah's new power and water complex (presently receiving gas from Oman) and the Jebel Ali complex.

Historically, all the UAE's water requirements were met from groundwater obtained from shallow, hand-dug wells and the traditional *falaj* system of aquifers. Over the past two decades, rapid economic development, coupled with steep population increases and a push to achieve self-sufficiency in food supplies, have placed ever-increasing pressure on the UAE's precious natural water resources. This is a real challenge for a country with no rivers and little rainfall.

The UAE is now the world's third largest per capita water consumer after the US and Canada. Annual water consumption in Abu Dhabi Emirate alone is estimated to be 2.486 billion cubic metres: 1692 million cubic metres or 69 per cent is used for agriculture, 124 million cubic metres or 5 per cent for forestry, 219 million cubic metres or 8 per cent for amenity planting in gardens, parks and roadside plantation, and 451 million cubic metres or 18 per cent for domestic consumption. Abu Dhabi's water consumption is expected to increase to 5.858 billion cubic metres by 2020. Since occupants of large labour camps and five-star hotels ('transit population') are major consumers of water in the emirate, the rate of consumption may outpace the actual population growth rate.

Although groundwater still plays a significant role in meeting agricultural demand throughout the Emirates, and more than half of the water distributed by the federal authority (FEWA) in the Northern Emirates is sweet groundwater, a high proportion of the UAE's requirements is being met by an extensive gas-fired

desalination programme, with Abu Dhabi accounting for around half of the total desalinated water production in the UAE. Water production, as distinct from capturing groundwater, reached more than 195 billion gallons in 2004. The significant increase in production (up from 130.5 billion gallons in 1996) is primarily a result of the completion of new desalination plants.

In recent years water management initiatives have also included the restoration of traditional *falaj* irrigation systems, the building of delay and recharge dams, well-drilling and aquifer-testing and exploration. In particular, the groundwater exploration and monitoring programme undertaken by two German companies under the supervision of the Abu Dhabi National Oil Company (ADNOC) has been instrumental in discovering new water resources in Abu Dhabi. Under the same programme, a major study (Groundwater Assessment Project (GAP)) on groundwater consumption and use in agriculture and forestry provides precise and reliable data for efficient irrigation management. All data collected by GAP is continuously stored and evaluated in an advanced Groundwater Information System (GIS), including an inventory of more than 13,000 wells surveyed by the project in Abu Dhabi. Combined with the application of a countrywide mathematical groundwater model, this tool is seen as one of the most advanced instruments in groundwater resources management in the entire region.

Supplementing the new wells, over 130 recharge and storage dams have been constructed to utilise an estimated 150 million cubic metres per year of wadi (seasonal river) flow from 15 main catchment areas; 9 major recharge dams have a capacity of 47 million cubic metres, the remainder can hold about 60 million cubic metres.

In addition, water conservation measures are being implemented throughout the Emirates, especially in the agricultural and amenity planting sector where plant suitability, crop replacement and drip irrigation techniques are being promoted to save water. Emirates such as Abu Dhabi are also educating the general public about the importance of water conservation.

### ABU DHABI

Since its establishment in March 1998 with the principal goal of managing and privatising the water and electricity sector in the emirate of Abu Dhabi, Abu Dhabi Water and Electricity Authority (ADWEA) has developed projects with a total installed electricity and water production capacity of 7100 MW and 500 million gallons per day (mg/d) through a successful IWPP (independent water and power projects) programme. This is designed to attract foreign investors to build, own, and operate new or enhanced generation facilities.

The privatisation process has attracted an investment of over Dh35 billion into the power sector, thereby increasing production capacity without impacting on

government spending. Greater production efficiencies achieved by the handing over of these companies to the private sector has also enabled the government to divert budget outlays from power subsidies to other areas.

#### *Privatisation*

The first IWPP undertaken by ADWEA was the Taweelah A2 project situated in the Taweelah complex about 60 kilometres north-east of Abu Dhabi City. This involved the development of a 710 MW net-capacity, combined-cycle generation plant with 50 mg/d of multi-stage flash desalination capacity. Emirates CMS Power Company (ECPC) was established to build, own and operate the plant. As in other IWPP joint ventures, the government through ADWEA retained 60 per cent of the shares of ECPC, and CMS Generation Taweelah Ltd, a wholly-owned subsidiary of CMS Generation, has a 40 per cent stake. The Taweelah A2 Operating Company Ltd, also a wholly-owned subsidiary of CMS Generation, provides management, operations and maintenance of the facility under the terms of a 20-year agreement. The first 185 MW power unit started up in July 2000 and the whole complex was fully operational by April 2002.

In June 2005 a Dh2 billion (US\$544 million) initial public offering of ECPC was launched comprising 50 per cent of Abu Dhabi government's 60 per cent stake. This means that 60 per cent of the total stake in the firm will now be held by the government (30 per cent) and UAE citizens (30 per cent), while 40 per cent will stay with CMS Generation. This is a formula that will be repeated with other IWPPs.

Taweelah A1, encompassing the sale, refurbishment and extension of an existing plant that was previously run by the Bainounah Power Company, was the second IWPP formed under ADWEA's stewardship. This was undertaken by a consortium in which ADWEA's partners were Total (with 20 per cent) and Tractebel (also 20 per cent). Commissioned in May 2003 and operated by Gulf Total Tractebel Power Company (GTTPC), Taweelah A1 produces 1350 MW of electricity and 84 mg/d of desalinated water.

The third privatisation involved the development of a complex at Jebel Dhanna near Shuwaihat. This is a brownfield venture 250 kilometres west of Abu Dhabi City consisting of a gas-fired, combined cycle power station with a capacity of 1500 MW and a 100 mg/d desalination plant. The plant was developed by Shuwaihat CMS International Power (SCIPO), a joint venture between ADWEA (60 per cent) CMS Energy (20 per cent) and UK's International Power (20 per cent) that was formed in mid-2001. The first units started up in the spring of 2003 and the whole complex was fully operational by the third quarter of 2004.

Privatisation of the Umm al-Nar Power Company (UANPC), set in motion in 2003, was the fourth in the series. This time a slightly different corporate structure was put in place. UANPC ran an electricity generation and water desalination plant

located 10 kilometres north-east of Abu Dhabi City. This was acquired by the newly-formed Arabian Power Company (APC), 60 per cent of which is controlled by ADWEA's wholly-owned subsidiary, United Arabian Power Company (UAPC); ITM Investment Company Ltd, a joint venture between International Power plc (50 per cent), Tokyo Electric Power Company (TEPCO) (35 per cent), and Mitsui & Co. Ltd (15 per cent), controls the remaining 40 per cent. APC not only took over UANPC's existing capacity (850 MW/162 mg/d) and two recently commissioned units with associated infrastructure, it also assumed responsibility for the development, financing and construction of 1550 MW of new capacity and additional water generation. Commissioning of the first power unit took place in 2005, and full operations will start in summer 2006.

Abu Dhabi's fifth IWPP, Taweelah B, involves construction of a new plant and expansion of the existing Taweelah B. This is the biggest electricity and water privatisation project in the region to date in terms of investment cost and energy output. The existing plant already produces 1000 MW of electricity and 90 mg/d of water. The new plant, which will commence operating in 2008, will add a power generating capacity of 1000 MW and produce 65 mg/d of water.

At the beginning of 2005 ADWEA signed a Dh11 billion (US\$3 billion) agreement governing the Taweelah B project, Dh6.2 billion (US\$1.7 billion) for the sale of the existing station and Dh4.8 billion (US\$1.3 billion) to cover the cost of expanding the complex. The Japanese corporation Marubeni and its partners – Japan's JGC corporations, US-based BTU power company and Malaysia's Powertek Berhad – are the sole shareholders in Al Taweelah Asia Power, which will take a 40 per cent stake in the new Taweelah B project company. The remaining 60 per cent will be held by ADWEA through its wholly owned subsidiary Al-Taweelah United Power Company.

Plans to privatise Al Mirfa, which was supposed to be the fifth IWPP, have been put on hold. However, ADWEA has initiated its sixth independent IWPP, the takeover and expansion of UWEC's plant in Fujairah (see below).

ADWEA's remaining non-privatised production companies include Bainounah Power Company (BPC), which has two separate power and desalination stations in Abu Dhabi City (540 MW/16 mg/d) and Al Ain (461 MW); Umm al-Nar Power Company, which runs the 120 MW Baniyas power plant; and the Al Mirfa Power Company (AMPC), operating the 190 MW/39 mg/d Mirfa combined-cycle plant and the 143 MW Madinat Zayed power plant west of Abu Dhabi City.

All the electricity and potable water produced by IWPPs are purchased by Abu Dhabi Water and Electricity Company (ADWEC) under long-term contracts, and is resold to ADWEA's two distribution subsidiaries Abu Dhabi Distribution Company (ADDC) and Al Ain Distribution Company (AADC), which distribute based on the regional boundaries. Plans have been announced to privatise these companies through an IPO in late 2005.

In January 2005, ADWEA announced its intention to sell 51 per cent of its stake in the Al Wathba Company for Central Services to the Abu Dhabi Investment Company (ADIC). Al Wathba Company is the procurement arm for all ADWEA-owned companies, supplying transportation vehicles, both light and heavy vehicles, machinery, and equipment.

In a further development, a new public joint stock company, the Abu Dhabi National Energy Company (TAQA), a subsidiary of ADWEA, was established in Abu Dhabi in June 2005 and listed on the ADSM stock exchange in September 2005. The activities of the new company, which will have a capital of Dh4.15 billion, will include acquiring shares in companies or projects operating in the water, electricity, oil, gas and mineral sector inside or outside the UAE. It is envisaged that this company will take over the state's interests in IWPPs. One of TAQA's first moves was to acquire a 60 per cent in the Union Water and Electricity Company.

#### UWEC

The Union Water and Electricity Company (UWEC), which was set up by the Abu Dhabi government in June 2001 as part of the UAE Offsets programme, has completed a 656 MW power and 100 mg/d desalination plant at Qidfa, Fujairah. The desalination plant, commissioned in early 2004, has the capacity to produce 62.5 mg/d using multi-stage flash (MSF) technology and 37.5 mg/d using a reverse osmosis (RO) process. This makes it the only one of its type in the Middle East and one of the biggest such plants in the world using a combination of the two water desalination technologies. UWEC also constructed a 179-kilometre dual pipeline capable of transporting up to 200 mg/d of desalinated water from the plant to Al Ain in Abu Dhabi. An 18-kilometre branch pipeline has also been built to supply the Northern Emirates through Dhaid in Sharjah. The operations and maintenance of the power and water generation plant and the water transmission pipeline are being carried out by Sogex Oman under a five-year contract awarded in late 2003.

A Dolphin gas pipeline connecting UAE with Oman has been in operation since January 2004 importing approximately 135 million cubic feet per day of gas via a link near Al Ain, and connecting to a pipeline which brings the gas to the plant. The direction of flow in this pipe-link with Oman can be reversed, if required – once Dolphin begins to receive its own substantial quantities of gas from Qatar.

Early in 2005 the Abu Dhabi Executive Council issued Resolution No. 19 of session 4/2005 to transfer the ownership of UWEC to ADWEA and a new UWEC board was constituted to facilitate the privatisation process. The acquisition and expansion will follow the same model as ADWEA's previous IWPPs. As outlined above 60 per cent of the company has been acquired by TAQA and 23 companies were due to submit final purchase offers for the remaining 40 per cent by mid-November 2005.

UWEC is planning to build a second project at Qidfa – an 800–1000 MW power unit and a 100 mg/d desalination plant. The new plant, which will enable the region to keep pace with the development of Fujairah and the other Northern Emirates and the agricultural and population expansion in the eastern region of Abu Dhabi, will raise the total investment of the company in Fujairah to over Dh8.5 billion (US\$2.32 billion).

UWEC is also playing a major role in the Emirates National Grid Project (ENG), to which it could supply up to 500 MW of power from the already commissioned first phase of the project, and up to 1500 MW after implementing phase two by mid-2008. The second-phase expansion would also enable the company to export power to neighbouring countries through individual agreements or through the planned GCC power grid.

#### POWER GRIDS

Contracts worth Dh814 million (US\$221.7 million) were signed in May 2004 with seven international and local power companies for the construction of substations and the installation of power transmission lines associated with the establishment of a single integrated power network, the Emirates National Grid (ENG). Set up by the Abu Dhabi government in 2001, the project is being jointly undertaken by the five power utilities in the UAE, UWEC, ADWEA, DEWA, FEWA and SEWA, and is designed to enable the emirates to share their reserves of electric power. The interconnected grid is expected to yield capacity savings equivalent to 1105 MW for the whole network up to 2010.

The ENG project will also facilitate the UAE's plans to link up with the Gulf Electricity Interconnection Grid, further improving performance and reliability throughout the country. In May 2004, the GCC approved a funding plan for the GCC project, which it is estimated will cost US\$6 billion. The Dh4.36 billion (US\$1.189 billion) first phase of the Gulf Electricity Interconnection Grid will become operational by mid-2008. The landmark project got under way with the awarding of engineering, procurement and construction (EPC) contracts in August 2005. Phase one (costing Dh4.36 billion or US\$1.189 billion) will link Kuwait, Saudi Arabia, Bahrain and Qatar. Phase two (at Dh1.1 billion or US\$300 million) will link Oman and the UAE. The two systems will be linked in phase three at a cost of Dh502.7 million (US\$137 million), thereby completing the regional grid. The development's costs will be shared by all six GCC states in proportion to the reserve capacity savings. It has also been decided that the governments of the six states will be responsible for providing their share of the necessary capital in the form of either equity or debt.

#### DUBAI

The Dubai Electricity and Water Authority (DEWA) signed contracts worth Dh7 billion in 2005 as part of its projected Dh20 billion investment to expand capacity

by 2012 to around 10,000 MW of electricity and 370 mg/d of water. These increases are vital to keep pace with demand in an emirate that is experiencing massive development, especially in high-consumption tourist facilities. In 2004 alone power consumption in Dubai increased by about 14 per cent and water consumption by 9 per cent compared with 2003. An annual growth of 15 to 18 per cent is envisaged between now and 2012.

Most of the electric power consumed in Dubai is generated by a cluster of power stations located in and around Jebel Ali. Jebel Ali H complex was completed in 1998, Jebel Ali K in 2002. Work is now under way on DEWA's L power and desalination plant, also in Jebel Ali. The first phase of the four-phase project, which commenced in 2003, involved the building of an 850 MW gas-fired power station and a 70 mg/d desalination plant, a 400 kV transformer station and the setting up of 400 kV overhead transmission lines to connect the L station to the Dubai electricity grid. Phase two of the Jebel Ali L project, the contract for which was awarded in June 2005, will see the completion in 2008 of a 1200 MW power station and an 80 mg/d desalination plant.

In addition, phase two of the Al Aweer gas turbine power project (H station) is being commissioned in stages and will be operational in 2006. Station H's production capacity is currently 600 MW and its total capacity will be 1000 MW on completion.

A new 400 kV substation was built and three existing substations expanded to handle the power produced by Jebel Ali H. Two more 440/132 kV substations are also under construction. Contracts signed in 2005 for the construction, completion and commissioning of six substations of 132/11 kV for new localities in Dubai and the construction of three substations and the laying of cables will also assist with efforts to keep abreast of demand. Nine new 132/11 kV transformer stations also underwent commissioning tests in 2005 prior to being connected to the Dubai power grid. The stations will serve many of the recently constructed massive real estate projects. Each of the nine stations will consist of three transformers with transformation capacity of up to 50 MVA, all of which have been linked with distribution networks through 132/11 kV main switches. DEWA also plans to join the national grid once that project comes on-stream.

#### SHARJAH

Sharjah has greatly increased its installed electricity capacity since 1996 and continues to invest heavily in the electricity and water sector. At the end of 2004 Sharjah Electricity and Water Authority (SEWA) awarded US General Electric Company a Dh229 million (US\$62.4 million) contract for the supply, commissioning and operation of two new turbines with total capacity of 200 MW, thereby implementing phase five of the Wasit power station, which will increase its generation capacity to 1900 MW from 1700 MW. Rolls-Royce will supply Trent-60



power generation sets to power the latest phase of the Wasit power plant expansion under a Dh146.8 million (US\$40 million) deal with SEWA. The units are scheduled to be operational by the end of January 2007.

SEWA is also planning to increase its water production from the current 70 mg/d to 95 million mg/d. This will be in addition to an increased production of 10 mg/d at the Khor Fakkan and Kalba stations. To achieve this, SEWA has employed up-to-date technology to maximise production. For example, at Al Layyah desalination plant the use of a multi-flash/stage system and a new filtration technology has helped to reduce costs and increase productivity. New technology at the Al Saja'a desalination plant has also contributed to a 20 per cent increase in production. In addition, SEWA is building an underground, state-of-the-art water tank with a capacity of 500 million gallons approximately 50 kilometres from Sharjah City.

A groundwater exploration project carried out under an agreement between SEWA and Boston University is using satellite imagery to identify groundwater resources in Sharjah and the other Northern Emirates. The programme is particularly interested in two unconventional resources: fracture zones and dried river courses. Geographical Information System (GIS) technology is also being used to establish electricity, water and gas databases and to enhance the coordination between SEWA and local government departments.

#### FEWA

The Federal Water and Electricity Authority (FEWA) supplies power and water to Ajman, Fujairah, Umm al-Qaiwain, Ra's al-Khaimah and part of Sharjah Emirate, and has a customer base of 200,000 subscribers in these five emirates. It currently generates 1150 MW of electricity and 24 mg/d of desalinated water. By 2006, its power generation capacity will reach 1400 MW and 42 mg/d of water.

FEWA is currently working on projects worth Dh3.15 billion, including a Dh1.7 billion power and desalination plant under construction in the Al Zawahara area in Ajman. The project is expected to be commissioned in 2007. FEWA will also commission a 100 MW power station in Ra's al-Khaimah's Nakheel area and is currently implementing a Dh560 million transmission and distribution project, in addition to expanding the distribution network, valued at Dh300 million. FEWA also commissioned two new water desalination plants in Ra's al-Khaimah as part of its effort to solve the problem of water supply both to residents and industry in that emirate. Both facilities have the capacity to produce 10 mg/d. FEWA will officially take over the two plants in 2006. Groundwater levels have dropped significantly in the emirate and at present, its total desalinated water output is less than actual consumption. Work is also under way to review and upgrade the emirate's water pipeline network.

FEWA's new premises in Dibba Al Fujairah, built at the cost of Dh3.5 million, was inaugurated in April 2005.

## TELECOMMUNICATIONS

The UAE has a well-developed, technologically-advanced telecommunications infrastructure and has high mobile telephone (over 95 per cent) and Internet penetration (40 per cent). Since 1976 majority government-owned telecoms corporation Etisalat, a World Top 500 company in terms of market capitalisation, has operated, maintained and developed the national and international fixed-line network, mobile telephony, Internet access and cable TV services. However, recent government decisions provide for the deregulation of the market, leaving the way open for other operators to offer mobile and fixed line telephony in accordance with the legal framework being implemented by the Telecommunication Regulatory Authority (TRA).

A decree issued in September 2005 by Sheikh Khalifa revised articles 2, 26 and 80 (Para 5) of Federal Law No. 3 for 2003 that dealt with deregulation. The new Article 2 establishes a committee to oversee the telecommunications sector, to be called the 'Higher Committee for Supervision of Telecommunications Sector'. This has four members, including its chairman, representing the Ministry of Presidential Affairs, Court of the Vice President and Ruler of Dubai and the Council of Ministers. The Ministry of Communications has been tasked by the decree to represent the Government's share in Etisalat. An 11-member board of directors will run the corporation, seven of whom, including the board's chairman, shall represent the Government while the rest will be elected by shareholders for a tenure of three years. All rules in contravention of the new promulgated law are now superseded.

The first step in the liberalisation of the sector was taken in May 2005 when the TRA granted a licence to a new Dh4 billion telecom provider following a federal government decision to set up a company in which the Pensions and Social Security Authority and other private sector shareholders hold a 40 per cent stake. Remaining stakes will also be earmarked for public sector shareholders and will be put to public offering.

Etisalat is meeting the deregulation challenge on three fronts – the first focuses on the corporation's package of services, products and quality of delivery, the second on reshaping the organisation to reflect the new market reality, and the third on making the transition to an international corporation through strategic investment abroad, aided by new partnerships and alliances.

In this context the corporation has invested in Etihad Etisalat, Saudi Arabia's second GSM and 3G operator, Zanzibar Telecom, Sudan Telecommunications Company (Sudatel), Qatar Telecom (Q-Tel), Atlantique Telecom in West Africa, and Pakistan Telecommunication Company (PTCL). With its existing interests in the Thuraya Satellite Telecommunications Company (see below), Etisalat is rapidly

establishing itself in international markets and is looking at further initiatives through Etisalat International, the newly-formed international investment arm that has been actively identifying and pursuing international investment opportunities for Etisalat.

Etisalat reported revenues of Dh10.4 billion (US\$2.83 billion) and a net profit of Dh3.4 billion (US\$927 million) during 2004, an increase of 13 and 19 per cent respectively over 2003. The company's earnings per share increased to Dh10.4 in 2004, up from Dh8.7 in 2003, and its total assets rose by Dh2.5 billion to Dh20.4 billion (US\$5.55 billion). The corporation has continued to maintain its excellent growth record in all major areas in the first half of 2005, when it reported a 23.21 per cent increase in net profits to Dh2.11 billion, up from Dh1.71 billion for the corresponding period in 2004. Etisalat's net profit is now poised to cross Dh4 billion by the end of 2005. Its net revenues also rose by 23.17 per cent to Dh6.2 billion in the first half of 2005, compared to Dh5.03 billion for the first half of 2004. During the first half of 2005, fixed telephone lines increased by 4 per cent to 1,209,214. Nevertheless, Etisalat's major growth is currently emanating from the mobile telecom sector: mobile subscribers increased by 385,847 from 3,683,000 at the end of 2004 to 4,068,847 by mid-2005. Revenue from mobile phones accounted for 55.2 per cent of Etisalat's revenues, while fixed phones made up 25.9 per cent. During this period, Internet connections increased by 12 per cent to 371,882. However, with 1.2 million subscribers, UAE's tele-density reached 27.99 per cent. The corporation spent Dh506.9 million on capital expenditure; it also acquired a 50 per cent stake in Atlantique Telecom and a 26 per cent stake in Pakistan Telecommunication Company for Dh9.50 billion (US\$2.59 billion), and it participated in a rights issue by Sudatel, investing an additional Dh37.41 million.

In addition to its mainstream operations, Etisalat also provides specialised services through subsidiaries such as the cable TV company E-Vision, which services Dubai, Abu Dhabi, Al Ain, Sharjah and Ajman. During 2005, another subsidiary, eCompany, in partnership with Symantec and Linksys, a division of Cisco Systems, introduced Al Shamil broadband access service to home users. More than three quarters of the UAE's Internet users connect through snail-paced dial-up phone lines. This is set to change with the launch of Al Shamil.

In June 2005, Etisalat was awarded the Network Pioneer award by *Network Middle East* magazine for its pioneering work on integrating IPv6 (Internet Protocol Version 6) support into its infrastructure and leading the way in the testing of IPv6 among ISPs in the region. IPv4 (Internet Protocol Version 4), which has been in operation for 20 years, is now being challenged by the growing need for new IP addresses as cellular phones and IP-based services mushroom along with the convergence of voice and data. In such a scenario, the ability of IPv6 to expand the number of addresses available from 32-bit addresses to 128 bit is crucial.

Also in 2005, E-marine, Etisalat's submarine cable-laying subsidiary, announced that it had completed the first phase of the international SEA-ME-WE-4 project to connect Jeddah to India, using its newly acquired cable ship CS Niwa, the third largest cable ship in the world. The second phase will be completed by May 2006. SEA-ME-WE-4 is a high-capacity fibre-optic communications submarine cable system connection between Southeast Asia, the Middle East and Western Europe.

Whatever the scope of the newly-liberalised UAE telecom market, a new operator will probably have to rely on Etisalat's telecommunication backbone, depending on the kind of service in question. In fact, commercial operations that resell telecommunication services to third parties already exist, though the operators are, in effect, government companies, namely Dubai Internet City (DIC) and the real-estate company EMAAR. DIC is virtually the telecommunication provider (fixed lines and Internet) for over 1500 companies currently based in DIC, Media City and Knowledge Village. It buys bandwidth from Etisalat and internally handles all related infrastructure and services, including billing and support. Meanwhile, EMAAR, which is spearheading mass development of modern residential clusters aimed for expatriate ownership and rental, is in turn buying bandwidth from DIC to cater for the telecommunication needs of what will eventually be tens of thousands of tenants.

#### THURAYA

Etisalat is a majority shareholder in the Thuraya Satellite Telecommunication Company and is also Thuraya's service provider in the UAE. Thuraya was founded in January 1997 as a UAE-incorporated, private joint stock company with an initial capital base of US\$25 million. This had increased to US\$500 million by August of 1997 as the list of shareholders grew. In December 1998, Thuraya appointed a consortium of four banks to underwrite a loan of US\$600 million for the remainder of the project cost.

Thuraya provides satellite-based communication solutions in urban centres and remote areas beyond terrestrial telecom networks, offering mobile and fixed telephony, rural telephony (through public call offices or PCOs), maritime communications, GPS tracking and satellite Internet services across more than 120 countries spanning Europe, the CIS, Africa, the Middle East, and Southeast Asia. The service complements national GSM networks, allowing subscribers to remain connected to their national mobile networks and to access Thuraya's system whenever their national network is out of reach. Prepaid cards are also available to enable multiple users to maintain independent billing for a single handset.

In June 2005 Thuraya commercially launched its new satellite broadband service branded as 'ThurayaDSL'. This is aimed at individual and corporate customers in need of reliable high-speed data connectivity in areas lacking adequate terrestrial infrastructure. Based on a notebook-sized plug-and-play device that offers a

speed up to 144 kbps on a shared channel, the terminal, which is SIM card operated, must be connected via ethernet to a notebook or a computer for normal Internet/data usage.

Thuraya's first satellite, Boeing Satellite Systems' Thuraya-1, was successfully launched on board a Sea Launch Zenit-3SL rocket from the equator in the middle of the Pacific Ocean on 21 October 2000. This was also the first satellite initiated from the Middle East and the heaviest satellite to be launched up to that time. Thuraya's second satellite, Thuraya 2, was launched in June 2003, enabling the company to expand its satellite telecommunications southward in Africa. Thuraya's third satellite will be delivered by June 2006 and launched in early 2007 to cover Asia. The company is also actively considering the option of a fourth satellite.

Due to depreciation of the two satellites, Thuraya earned a modest net profit of US\$26.15 million (Dh95.97 million) from revenues totalling Dh1.054 billion in 2004, down from a net profit of US\$38 million (Dh139.46 million) and total revenues of Dh1.068 billion in 2003. Higher revenues forecast for 2005 are substantiated by recent results. Thuraya had 220,000 subscribers for its handsets in 2004, but, by August 2005, total sales of handsets had reached 326,000. The second generation handsets will arrive by mid-2006 and the company is predicting a slight shortage of handsets prior to that launch.

Thuraya's Public Call Offices (PCOs), numbering 4000 in 2004, also contributed to growth in 2005. Some 3000 PCOs were introduced in Libya in August 2005 and another 500 were destined for Uganda later in the year, taking the total sales of PCOs to more than 5000. As a result of this increased activity, the company earned a net profit of Dh181.66 million (US\$49.5 million) in the first six months of 2005 and expected that profits for the year would touch Dh319.29 million (US\$87 million), 22 per cent higher than 2004 in terms of revenue earnings.

## EMIRATES POST

Emirates Postal Corporation (EPC or EmPost) was formed in 2001 following restructuring of the UAE General Postal Authority to assist in reorganisation of the existing postal service in line with global developments. The introduction of integrated IT systems, automated sorting centres and agreements with international postal authorities improved efficiency and enabled a reduction in postal tariffs. Alliances with world giants such as Western Union and DHL facilitated the introduction of money transfer services and cross-branded products like 'International Express' whereby consignors using Emirates Post packaging can utilise DHL's airway bill system and worldwide network. This process is ongoing and in June 2006 Emirates Post announced plans to purchase a 60 per cent stake in Wallstreet Exchange Centre's operations in the UAE, Middle East, Europe, Asia and America.

As part of Emirates Post strategy to diversity its services and transform UAE post offices into one-stop shops, several new non-postal services are available at its network of 77 post offices, including consumer banking in alliance with Union National Bank, prepaid telephone cards, payment of utility bills, provision of Internet stations, sale of mobile phones and accessories, prepaid parking cards, payment of parking fines, degree verification and sale of stationery items. Some post offices will also offer E-Vision subscriptions. Emirates Post has also forged ties with private sector companies such as Air Arabia and Cellucom. Full details of services are available from Emirates Post's website <http://www.emiratespost.ae>.

Emirates Post, which is capitalised at Dh100 million (US\$27.25), announced a record net profit of Dh123 million (US\$33.5 million) for 2004, an increase of 20 per cent over the previous year, a significant part of which was generated by diversification into non-postal services. The company hopes to increase profits by 12 per cent during 2005. EPC has lined up a number of new initiatives for 2005 that will see the corporation consolidating its status on the regional and international map, including plans to have its own fleet of aircraft for cargo services and the acquisition of a suitable company to provide shipping and logistics services. In line with privatisation trends, Emirates Post has also initiated discussions to go public in 2006 through the flotation of at least 40 per cent of its shares on the local market.

Emirates Post efforts in the marketplace received high recognition at the Second International 'Stevie' Business Awards in New York where its Training and Development Centre won the 'Best New Service Award', and its Director-General Abdullah Al Daboos was a finalist in the 'Best Turnaround Executive' category.

The Universal Postal Union (UPU), the United Nations specialised agency that controls postal operations in 190 countries, has selected the UAE as the venue for its 2006 Strategy Conference. This is the first time that the UPU Strategy Conference will be held outside Switzerland, the headquarters of UPU. The event, to be hosted by Emirates Post, will take place in Dubai in November 2006.

## AIRPORTS AND AVIATION

Not surprisingly, the significant increase in economic, business and tourist activity in the country has led to a corresponding increase in the aviation industry in the UAE. Bucking international trends, airlines based in the UAE have a combined purchase order book of over Dh95 billion (US\$25.8 billion) and the UAE's total investment on airport development over the coming 20 years will exceed Dh71 billion (US\$19.35 billion). This figure includes redevelopment of Abu Dhabi International Airport at a cost of Dh25 billion, Dh15 billion being spent on the ongoing expansion of Dubai International Airport, and Dh30 billion estimated for the new Jebel Ali International Airport (JAIA) development, the UAE's seventh airport.

In addition, Sharjah International Airport intends to spend Dh227 million on redevelopment and Fujairah has pledged Dh183 million investment for the expansion of its terminal and associated structures, Al Ain International Airport is undergoing a Dh75 million development, while the Ra's al-Khaimah government is also expanding its airport. The sum total of these projects ensures that the UAE has become the largest investor in airport development in the Middle East.

Security issues have been a primary focus of airport development and the UAE was the first country in the world to fully implement iris scanning at all its entry/exit points. All its air, sea and land immigration counters have the system. A recent UAE research study on the iris scanning system installed at checkpoints nationwide shows no false matches in about 200 billion cross-comparisons of different iris patterns.

#### ABU DHABI

In 2004 more than 3.25 million passengers passed through Abu Dhabi International Airport (ADIA), the gateway to the capital city of the UAE. This represents an increase of 22 per cent on 2003 and the busiest year on record. Current capacity is approximately five million, but a major new expansion plan for ADIA, which got under way in mid-2005, will significantly increase this figure.

Abu Dhabi is in a position to deliver the massive expansion of its airport capacity with far less difficulty, and in a far more cost-effective manner, than for other comparable projects in the region and around the world. When the current airport was being planned, three decades ago, it was thanks to the foresight of the late UAE President, HH Sheikh Zayed bin Sultan Al Nahyan, that a site was chosen within easy reach of the growing city of Abu Dhabi, and yet with sufficient space to allow for its future expansion. That foresight and vision is now proving its worth. President HH Sheikh Khalifa bin Zayed has recognised that now is the time for a major expansion of the airport, so that its existing facilities will be ready to deal in an effective manner with the projected growth of Abu Dhabi's aviation and tourism businesses, as well as that of other sectors of the local economy.

Costing an estimated Dh25 billion (US\$6.8 billion), the master plan involves the construction of a new mid-field passenger terminal, a second runway, 4100 metres in length, and 2000 metres from the existing runway, and cargo, maintenance facilities and other commercial development on land immediately adjacent to, and north of, the existing airport. The first phase is due to be completed by 2010.

Another key part of the project is the provision of a substantial increase in cargo facilities, with an ultimate handling capacity of around 2 million tonnes of freight a year. A major user will be UAE national carrier Etihad Airways, which is based at the airport. It has identified airfreight, in particular transit cargo, as one of the key growth areas, although the other 20 or so airlines currently using Abu Dhabi International Airport will also benefit.



Plans for the expansion were approved in May 2005 by UAE President HH Sheikh Khalifa bin Zayed Al Nahyan. The multi-phase project is being overseen by the Supervision Committee for Expansion of Abu Dhabi International Airport (SCADIA) with the mandate to oversee its execution up to the stage of the delivery of a fully-functional facility.

Overall, the project will see a doubling of the existing airport land area, to 3400 hectares, with dedicated buffer zones to the north and south. The facilities will be designed for an initial handling capacity of 20 million passengers a year when they open in five years time, and an ultimate capacity of 50 million passengers a year.

This multi-billion dirham project will provide the UAE's capital city of Abu Dhabi with an ultra-modern gateway to the world. It represents a major part of the long-term strategy for Abu Dhabi to become one of the leading aviation, tourism and business centres of the region.

In the meantime, two new contemporary interim terminals, Terminals 1A and Terminal 2, costing Dh130 million (US\$30 million), became fully operational in late 2005, having been delivered by SCADIA to the Abu Dhabi Department of Civil Aviation in a record six months. The new terminals have increased the airport's capacity by three million passengers per year and are designed to relieve pressure on the existing terminal until the new complex is completed. The 12,000-square-metre Terminal 2, which services 12 airlines, delivers enhanced passenger comfort from arrival to departure. Terminal 1A, at 5000 square metres, has been dedicated to Gulf Traveller, which currently operates to 45 destinations from Abu Dhabi.

#### *Al Ain International Airport*

Abu Dhabi's second international airport is located on a 600-hectare site, 23 kilometres from Al Ain City, an important agricultural and educational area which is in the process of exploiting its huge tourism potential. Although the airport only commenced operations in 1994, 13 airlines, including Gulf Air, are operating out of Al Ain. Dh75.23 million (US\$20.5 million) is being spent on doubling the size of the departure lounge and check-in area, and building a VIP lounge, office facilities, dedicated cargo terminal, bonded warehouse and a high-tech inflight catering facility.

#### DUBAI

In 2004, 21.7 million passengers passed through Dubai International Airport (DIA). This figure increased by 13.7 per cent in the first half of 2005 compared to the same period in 2004. The number of passengers totalled 11,837,271 during the first half of 2005, up from 10,414,143 in the same period in 2004, and aircraft traffic rose 11.4 per cent to 105,646 from 94,795 movements. By the end of 2005, it is estimated that 25 million will have passed through DIA and forecasts for 2010 are for a throughput of 60 million passengers. To facilitate the growth, the second

phase of DIA's Dh15 billion (US\$4.1 billion) development plan is well under way. This includes construction of the new Terminal 3, Concourse 2 and Concourse 3 (all dedicated to Emirates airline), a cargo mega terminal and an upgrade and expansion of Terminal 2. Terminal 3 (a multi-level underground structure featuring lounges, restaurants, a hotel and 10,000 square metres of commercial space, including Dubai Duty Free outlets) and Concourse 2 are scheduled to be operational by the first quarter of 2007.

Dubai Duty Free, currently ranked No. 3 in the world in terms of turnover, recorded sales amounting to US\$283 million in the first half of 2005, representing an increase of 19 per cent over the previous year and placing the operations on track for another record year.

Dubai Cargo Village (DCV) handled 1.17 million tonnes of cargo in 2004, compared to 959,082 tonnes in 2003, an increase of 22 per cent. Figures for 2005 are also up (by 17 per cent in the first half of 2005). This is a continuing success story since DCV has experienced 20 per cent annual cargo growth over the past three years, outstripping projected annual growth of 10 per cent. DCV will double its capacity to 2.5 million tonnes by early 2007 when phase one of the expansion programme is completed. This will provide additional warehousing capacity, more office space, conference facilities and a shopping centre. The expansion is long overdue since business had outgrown capacity several years ago.

DCV's cargo business is expected to remain steady, even after Jebel Ali Airport opens (see below) and therefore the second and third phases of expansion are proceeding as planned. These include the construction of three mega terminals aimed at raising DCV's total handling capacity to 4.5 million tonnes by 2020.

#### *Jebel Ali*

Jebel Ali Airport City (JAAC), occupying an area of 140 square kilometres, the size of Manhattan, will comprise Dubai Aviation City, Dubai Exhibition City, Commercial City and Emirates City, Dubai Logistics City (DLC), Residential City, Golf Resort, as well as Jebel Ali International Airport. The new airport, located next to the world's third largest free zone, the Jebel Ali Free Zone, will also be connected to Dubai Aid City, Techno Park and Dubai Investment Park. The two industrial parks contain a significant number of new manufacturing plants. The whole development, which will take between 25 to 30 years to complete, will create the largest air-sea logistics and transportation centre of its kind in the Middle East.

Jebel Ali Airport itself will involve an investment of Dh30 billion (US\$8.17 billion) in multiple phases up to the year 2020. The plan visualises the construction of an airport with six runways, cargo services, two passenger terminals and associated developments capable of handling 12 million tonnes of cargo and 120 million passengers annually. All will be designed to handle the new generation Airbus

A380-800F freighter version of the giant airliner. Phase one will be completed in September 2007. It will include a 4500 metres runway, a cargo terminal, a small passenger terminal and executive jet facilities. This will form part of the 25-square-kilometre Dubai Logistics City. The project will allow Dubai International Airport to focus on the development of passenger traffic without suffering from congestion or bottlenecks caused by freight and logistics operations.

#### SHARJAH

Sharjah International Airport (SIA) handled 1.6 million passengers in 2004. It also posted a growth of 40 per cent in the volume of cargo handled, 18 per cent in airplane traffic and 22 per cent in passenger volume during the first half of 2005. The healthy increase in passenger figures is attributed to Air Arabia's operations and its success since its launch in 2003.

SIA will have the capacity to handle 8 million passengers by early 2007 on completion of a Dh227 million (US\$61.8 million) expansion currently under way. The development will add a new departure area, a new arrival and transit area, in addition to more restaurants, coffee shops and car parking. As part of the expansion programme, more warehouses will be added to the cargo division, which already has five terminals with an area of 7200 square metres each. SIA has been recently named the 'Best Global Airport 2005' by the Institute of Transport Management (ITM), London.

#### RA'S AL-KHAIMAH

Ra's al-Khaimah Airport is experiencing a steady 7 to 10 per cent growth rate. This growth is expected to increase to 20 per cent in three years, in line with the major infrastructure developments taking place in the emirate.

In 2005 the airport was awarded the total quality management certification ISO 2000/9001, the occupational health and safety (OH&S) management system ISO 1999/18001, and environment ISO 14001/2004, becoming the first airport in the Middle East to obtain such accreditation.

#### FUJAIRAH

Fujairah International Airport, the only East Coast airport and an emerging tourist destination, has spacious lounges and a duty-free shopping complex. Fujairah, which is expecting a boom in tourism in the years to come, is spending Dh183 million on a second runway, as well as vastly improved ancillary passenger and cargo facilities. The revamped terminal will be able to handle around 8000 passengers.

Fujairah's strategic location between east and west and the nearby seaport make it a natural choice as an international cargo hub. A 9300-square-metre cargo complex provides flexible options for freight operators who wish to use the airport for transit, sea-air operations or as a regional hub.



## AIRLINES

### *Etihad*

Based at Abu Dhabi Airport, Etihad Airways is the UAE's newest full-service airline. Since its inaugural flight in November 2003, it has grown steadily. In the short space of time in which it has been operational, the airline has strategically increased the number of destinations it services, adding at least one route each month to reach a total of 28 by the end of 2005. One of the most significant of these new routes is Abu Dhabi-Toronto, which is serviced by three direct weekly flights from October 2005. The total is set to increase to approximately 70 destinations by 2010. By the end of 2005, Etihad expects to be carrying 1.2 million passengers. This will rise to eight million passengers within five years.

Obviously, Etihad's rapidly expanding network within the Middle East, Europe, Asia and North America and its ambitious passenger projections necessitated the build-up of the fleet. Etihad's cargo division, Etihad Crystal Cargo, which currently services five destinations, is also expanding its network. At the beginning of 2005, Etihad operated seven aircraft, four Airbus A330-200s one A340-300 and two Boeing 767-200s. It has, however, arranged for the purchase of 36 Airbus aircraft, 4 A380s, 4 ultra-long range A340-500s, 4 A340-600s and 12 A330-200s. The airline has also taken options to purchase 12 additional aircraft. Deliveries to Etihad will begin in 2006 for the A330-200s and A340-500s, and in 2007 for the A340-600s and A380s. The airline has also acquired five Boeing 777-300ERs, which will join the Etihad fleet from October 2005 to December 2005. The scheduled completion of Abu Dhabi Airport's expansion, Etihad's homebase, will coincide with the delivery of the giant A380s. Etihad plans to have 70 to 80 planes within five years.

In 2005, Etihad entered into a US\$1 billion (Dh3.67 billion) financing arrangement with Oasis International Leasing for the purchase of eight of the A330-200s, the largest single financing arrangement concluded by Oasis Leasing. It also signed an agreement with the National Bank of Abu Dhabi (NBAD) to syndicate the financing of the five new Boeing 777-300 ER aircraft. NBAD will act as structuring bank and mandated lead arranger for a select consortium of local and foreign banks for the syndication.

Since operations were launched in November 2003, Etihad Crystal Cargo has continuously expanded its market share at its home base. In May 2005, it reported a market share of 27 per cent at ADIA, making it the market leader for cargo services out of Abu Dhabi. In 2004, its first full year of operation, Etihad Crystal Cargo moved 20,000 tons of cargo. The cargo volume target for 2005 is in excess of 100,000 tons. Etihad's cargo services have been dramatically upgraded with the introduction of the first two of a fleet of regional freighter aircraft: the A300-600F



with a payload of up to 44,000 kilograms and the A310-300F with a payload of up to 39,000 kilograms.

### *Emirates*

Emirates airline's revenues totalled Dh18.1 billion (US\$4.9 billion) for the financial year ending 31 March 2005, Dh 4.8 billion (US\$1.3 billion) or 36 per cent more than its income of Dh13.3 billion (US\$3.6 billion) in 2003/04. Airline profits of Dh2.3 billion (US\$637 million) were Dh766 million (US\$208 million) or 49 per cent better than the previous year's profits of Dh1.6 billion (US\$429 million). With the addition of nine new aircraft during the financial year, Emirates' fleet count reached 75 at the end of March 2005.

The first two of 30 Boeing 777-300ERs ordered by Emirates arrived in late March 2005, heralding the start of a new expansion cycle in the airline's US\$30 billion order programme, which will see 97 wide-bodied aircraft being delivered at an average rate of one per month for the next eight years. Emirates fleet already included 21 Boeing 777s, a number set to grow to 51 by late 2007, making Emirates one of the largest 777 operators in the world.

Emirates' order book also includes 45 Airbus A380-800s – one-third of the total firm orders taken so far by Airbus for the new double-decker super jumbo, 20 Airbus A340-600HGWs, 2 A340-500s and 3 A310-300 freighters.

Daily passenger operations between Dubai and New York's Kennedy Airport began on 1 June with the long-range Airbus A340-500, following successful freighter operations initiated in September 2003. Emirates added a second daily non-stop A340-500 flight from Dubai to North America on 7 November 2005. The airline launched five other destinations in 2004/05, bringing the network total to 77 destinations, five of them cargo-only. In addition, Emirates increased the frequency of passenger services and/or capacity – with bigger aircraft – to more than a dozen existing destinations, and introduced freighter services to another four. In the process, 75 extra flights per week were added. As part of its ongoing expansion programme, new Emirates lounges opened at Brisbane and Auckland airports, with more in construction or planned at another 13 major airports worldwide.

In 2004/05, Emirates airline kept its place among the world's five most profitable carriers and ranked fifteenth in the world in terms of RPKMs (Revenue Passenger Kilometres). The airline forecasts that its fleet will exceed 150 aircraft by 2012 – including 12 freighters – and anticipates carrying 33 million passengers by then.

Emirates SkyCargo set a new record in 2004/05 with nearly 840,000 tonnes of tonnage carried, up almost 180,000 tonnes or 27 per cent from 660,000 tonnes in 2003/04. The airline's cargo division's revenue of Dh3.4 billion (US\$940 million) was Dh1.0 billion (US\$282 million) or 43 per cent higher than the previous year. Emirates SkyCargo now serves a global network of 77 destinations in 54 countries. It has launched services to 11 routes since January 2004, and

will commence new services to Beijing in February 2006. The cargo division won several awards in 2005, including the UK-based *International Freighting* 'Air Cargo Carrier of the Year Award' for the second successive year; 'Best Air Cargo Carrier – Middle East' from *Cargo News Asia* for the third consecutive year; and 'Best Cargo Airline to the Middle East' (seventeenth year running), 'Best Cargo Airline to the Indian Subcontinent' (eighth year) and 'Best Cargo Airline to the Far East' for the second time from *Air Cargo News*.

### *Gulf Air*

Gulf Air, founded in 1950, is now owned by the Kingdom of Bahrain and the Sultanate of Oman. The airline's network stretches from Europe to Asia covering 50 cities in 33 countries, serviced by a fleet of 35 aircraft.

After nearly a decade of losses, Gulf Air returned to profitability in 2004, reporting a net profit of 1.5 million Bahraini dinars (Dh14.6 million) for the year. The results mean Gulf Air has out-performed the targets set under 'Project Falcon', the three-year restructuring plan approved by its board in December 2002. The airline's turnaround effort remains on track, despite the challenges created by 30 million dinars (Dh292 million) worth of extra fuel costs. Gulf Air had reported a loss of 19.9 million dinars (Dh193.8 million) in 2003.

Gulf Air accounts for 40 per cent of the traffic through Abu Dhabi Airport and the number of passengers flying Gulf Air from Abu Dhabi continues to rise year-on-year, adding momentum to the airline's drive to achieve its financial targets. In 2004, Gulf Air operated just over 24,556 flights to and from Abu Dhabi International Airport. This is an increase of 13.6 per cent on the figures for the same period in 2003. The airline carried close to 7.5 million revenue passengers across its network, up from six million in 2003. Having attained an average passenger load factor of 72 per cent in 2004, passenger growth remained strong in 2005. Abu Dhabi's success, coupled with strong passenger traffic out of Al Ain, played a significant role in Gulf Air achieving record total passenger levels for 2004.

Gulf Traveller, the airline's all economy full service subdivision, which is based in Abu Dhabi, also registered good growth in 2004 with an average seat factor of 75 per cent. Gulf Traveller, which operates a fleet of twin-engine, Boeing 767-300 short-to-medium range narrow-bodied aircraft, has been profitable since its inception.

The first of six A330s being refurbished for Gulf Air was unveiled in March 2005, the other five were introduced later in the year as part of a US\$10 million (Dh36.7 million) refurbishment programme in which six A320s and five A340s will also get the same treatment.

Gulf Air won major accolades in 2005, gaining top place in the Skytrax awards for both its first and business class onboard catering on long-haul intercontinental flights. This followed the strong showing in the Skytrax awards by Gulf Air in 2004, when the airline was awarded the prize for the 'Most Improved Performance 2004'

as well as achieving the 'Best On-board Catering (First Class)' and the 'Best Check-In Facilities (Business Class, at Bahrain Airport)' awards. The Skytrax awards were just one more in a series of high-profile wins for Gulf Air in 2004, including the 'Airline Turnaround of the Year Award' from the Centre for Asia Pacific Aviation in 2003 and a platinum award for the 'Best Middle East and North Africa Airline' at the 2004 and 2005 Arabian Travel Market's MENA Travel Awards.

For 25 years the junction of Old Airport Street and Hamdan Street in Abu Dhabi has been known locally as 'Gulf Air Corner'. However, to keep pace with its burgeoning business, Gulf Air moved to brand new premises on Rashid Bin Saeed bin Al Maktoum Street in 2005. The new two-storey building will provide a one-stop-shop for all Gulf Air activities in the emirate.

#### *Air Arabia*

Also established in 2003, Air Arabia, the first low-cost airline of its kind in the Middle East and North Africa region, is owned by the government of Sharjah. Completing 18 months of operations at the end of May 2005, Air Arabia announced that it had broken even with revenues of Dh216 million (US\$58.8 million), growing from 5 to 16 destinations with a team of over 300 employees, flying 5398 sectors and logging over 13,000 flight hours on a fleet of five aircraft Airbus A320s. The fleet is leased, but Air Arabia plans to add two A320s aircraft per year over the next three years.

The airline services 16 destinations within the Middle East, North Africa and the Indian subcontinent from its hub at Sharjah International Airport. Air Arabia commenced daily flights to Mumbai (Bombay) from the middle of March 2005 and plans to add more destinations in India, including New Delhi and Kerala. Plans are also under way to start operations to Bangladesh, Pakistan, the Mediterranean countries and Central Asia in the near future.

#### *GAMCO*

Gulf Aircraft Maintenance Company (GAMCO) posted Dh44 million (US\$11.99 million) profit in 2004, a 87 per cent growth over the previous year. In May 2005 GAMCO activated its military maintenance facility for the F110-GE-132 engine in cooperation with the UAE Air Force and Air Defence (UAEAF & AD), and General Electric (GE). This followed a tripartite agreement signed earlier to provide depot engine repair, maintenance and overhaul capability in the UAE for UAEAF & AD military F110-GE-132 engines powering F-16 aircraft. Previously, such repairs required shipment to facilities in Europe or the USA. The UAEAF & AD division will supplement existing aircraft maintenance operations at GAMCO with new equipment, tools and training. The addition of high technology equipment and capability positions GAMCO to compete for similar engine depot work including civilian aviation and industrial business from other countries within the GCC region and beyond.

#### THE DESERT FALCONS



The UAE celebrated arrival of its first F-16E/F aircraft on 3 May 2005. The first 'Desert Falcons' to be based in the Emirates, piloted by Emirati pilots, put up an impressive air display prior to landing for an official reception. The aircraft were specially modified for the UAE and represent a giant leap forward in the Air Force's modernisation and the country's defence capability. This particular version of the F-16, also known as Block 60, is the latest and most advanced of the long lineage of F-16s produced by Lockheed Martin and the UAE order amounts to 80 aircraft.

The first flight of the F16E/F was made in December 2003. Flight testing at Lockheed Martin began in early 2004. UAE pilot training on the aircraft began in September 2004 and the first pilots completed their training in April 2005, just in time to fly their aircraft back to the UAE. The large circulation magazine *Popular Science* named this version of the F-16 as one of the world's top technical innovations of 2004.

The UAE is continuing to build on its defence capability and its readiness to assist in peace-keeping missions.

## PORTS

### ABU DHABI

Mina (Port) Zayed in Abu Dhabi City is the emirate's main general cargo port, whilst the terminals at Jebel Dhanna/Ruwais, Umm al-Nar, Das Island, Zirku and Mubarraz islands handle the vast bulk of the UAE's significant crude oil and gas exports. A new port for Abu Dhabi is under consideration.

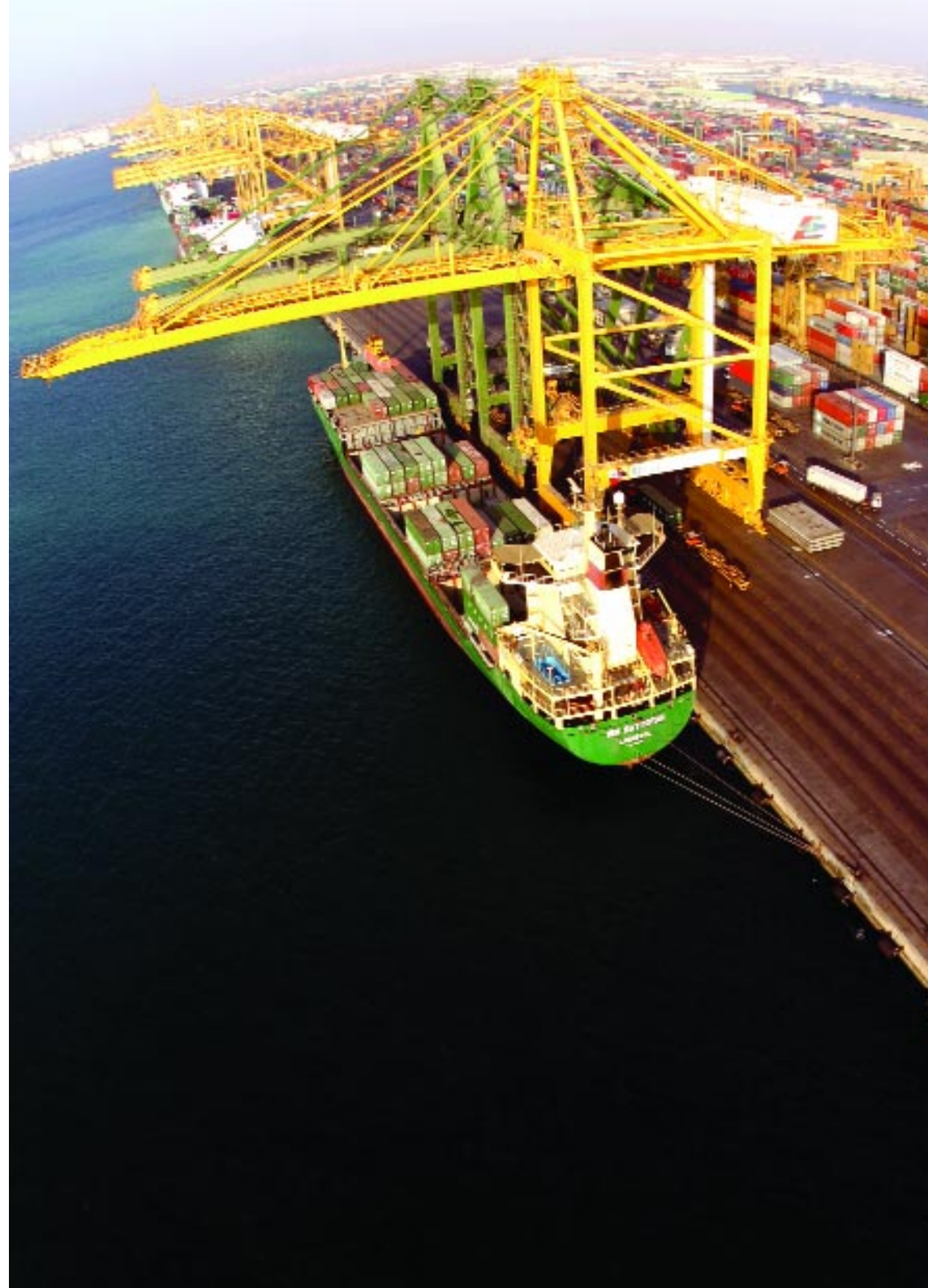
Established in 1972, Mina Zayed's facilities occupy a total area of 510 hectares, including 41 hectares dedicated to container terminals that can handle around 15,000 TEUs (20-foot-equivalent-units). Within the port's boundaries are over a million square metres of paved storage yard, over 100,000 square metres of climatically controlled storage sheds and ample cold storage. There are 21 berths for handling general cargo, including bulk cargo, ro-ro, project cargo, reefer cargo and petroleum products. The port has 17 general cargo berths with a total quay length of 3380 metres and a quayside depth varying from 9 metres to 15 metres.

Expansion at Mina Zayed is taking place in two phases over a period of 15 years, ending in 2013. The first phase, to be completed by 2006, includes rebuilding the docks, constructing a new 650-metre-long container depot that will virtually double the port's container handling capacity, and increasing the depth of the access channel from 13 metres to 16 metres. The second stage involves construction of four new docks, a fully-computerised, quality-control system and new fuel storage facilities.

In January 2005, Abu Dhabi Seaport Authority (ADSA) and Dubai Ports International (DPI) signed a Memorandum of Understanding (MoU) for the development of a joint strategy to develop and manage Mina Zayed. ADSA is responsible for all port activities in the emirate of Abu Dhabi whereas DPI, which is fully owned by Dubai Ports Customs and Free Zone Corporation (DPCFZC), currently operates a number of ports around the world (see below). The MoU was followed by the execution of a management services agreement in July 2005. Under the terms of the agreement, DPI will take over the day-to-day management of operations of Mina Zayed, which will be integrated into the global DPA network and be marketed jointly with other ports such as Jebel Ali and Mina Rashid. The combination of Abu Dhabi and Dubai's first-class port facilities and DPI's global network and standards of excellence will enable the UAE to further compete regionally and internationally.

### DUBAI

Dubai's Ports at Port Rashid (35 berths) in Dubai City and Jebel Ali (71 berths), south of the city, play a pivotal role in trade in the UAE. In particular, Jebel Ali, which primarily handles bulk cargo and industrial material for Jebel Ali Free Zone, is the largest port in the country and the largest man-made port in the world.



Dubai Ports Authority (DPA) handled 6.25 million tonnes of general cargo in 2004, achieving a 20 per cent growth rate and an increase of 1.035 million tonnes over 2003. Goods entering through Dubai's ports comprised 81 per cent of the total, which amounted to 5.088 million tonnes in 2004, an increase of 27 per cent. Exports comprised 14 per cent of total tonnage or 869,000 tonnes, an increase of 12 per cent over 2003. The ports handled about 5.15 million containers in 2004, in comparison with just 1.6 million in 1993. This strong growth, assisted in no small way by the busy construction industry in Dubai, has continued into 2005.

DPA achieved 22 per cent growth in container traffic during the first half of 2005 and presently ranks tenth in the world, having handled a total of 3,631,108 TEUs in the first six months of the year. During the same period, DPA handled 7651 vessels of all types, which was an 11 per cent increase over 2004. Container vessels made up 3279 of the total vessels, marking a 34 per cent increase over 2004.

The growth in throughput is in line with DPA's 25 per cent year-on-year growth in volume, which has been substantiated by the completion of the first phase of the four-phase, Dh4.6 billion expansion project at Jebel Ali. On completion in 2020, the port will have 82 berths equipped with 125 quayside cranes and supporting yard equipment, and will be able to handle 21.8 million containers a year.

The first phase, costing Dh868 million, commenced in March 2002 with the dredging of the channel at Jebel Ali terminal to 17 metres from the existing 14 metres and the widening of the channel from 235 metres to 325 metres. Completed in March 2005, ahead of schedule, this phase also involved the development of five additional berths equipped with 14 super post-Panamax quayside cranes and the construction of deep-water quay walls for extra large vessels calling at the port, bringing its total capacity to 5.7 million TEUs.

In mid-2005, Jebel Ali became the first port in the world to commission ten of the super tandem-lift gantry cranes capable of handling the giant ships of the future. The new cranes can handle four TEUs or two 40-foot containers at a time, thus speeding up the process of loading and unloading ships. The remainder are expected by early 2006. The dramatic growth in container movement and the fact that shipping lines expect ports to handle huge container vessels in an exceptionally short time has also encouraged DPA to install these and other top-of-the line systems to handle the increasing volumes of cargo more effectively. To date, DPA has successfully handled the arrival of several large container vessels, such as the 337-metre-long, 107,200-tonne MSC Pamela, the world's largest container ship with a capacity of 9200 TEUs.

The second phase of expansion at Jebel Ali, commencing in 2005 and scheduled for completion in 2007, will increase the total capacity of the port to 7.7 million TEUs. This involves developing 50 per cent of the 450-metre berths, construction of a new automated gatehouse and terminals, as well as the provision of additional cranes at a cost of Dh640 million.

In 2005, DPA won the 'Best Seaport in the Middle East' award for the eleventh consecutive year at the Asia Freight and Supply Chain Industry Awards (ASFCA). The award, which is in its nineteenth year, is run by *Cargonews Asia*, Asia's leading freight and logistics fortnightly, and is considered one of the most prestigious of its kind in the logistics and cargo supply chains industry in Asia. DPA's unbroken winning streak at ASFCA began in 1995.

Dubai Ports International (DPI), the overseas ports management arm of the Ports, Customs and Free Zone Corporation, was formed in 1999 to export the successes achieved by Dubai. DPI initially applied its expertise to managing ports in the Middle East, India and Europe. Its first project was at Jeddah Islamic Port (in 1999), DPI then went on to develop successful operations at the ports of Djibouti (2000), Vizag, India (2002) and Constanta, Romania (2003). In January 2005 DPI transformed its network with the strategic acquisition of CSX World Terminals (CSX WT), the international terminal business of CSX Corporation, renaming itself DPI Terminals to reflect the change. This acquisition gave DPI a strong presence in Asia with major operations in Hong Kong and China as well as operations in Australia, Germany, Dominican Republic and Venezuela.

One cornerstone project, which underlines DPI's position as a major player in Asia, is the development of Pusan Newport, South Korea. DPI has a 25 per cent interest in and management contract for this nine-berth facility, which will have a capacity of 5.5 million TEUs. It is currently under construction and is expected to be operational by 2006. Other significant projects will strengthen the network with further developments in India and the Middle East. In February 2005 DPI signed an agreement with the Cochin Port Trust (CoPT) to construct, develop and operate an international container trans-shipment terminal at Vallarpadam, Kochi, India. In March 2005, DPI was awarded a 30-year concession to develop and operate the container terminal at the Port of Fujairah (see below) and, as already mentioned, in July 2005, it concluded a management service agreement with Mina Zayed.

## SHARJAH

Sharjah's ports are Mina (Port) Khalid in Sharjah City and Khor Fakkan on the East Coast. Port Khalid's original depth was dredged in the early 1980s to deal with deeper draft vessels, and today the berth and quay configuration is designed to accept most types of vessels. The port handles a wide variety of tonnage, ranging from tankers, container vessels, ro-ro ships, to a multitude of smaller vessels such as coasters, supply boats, tugs, barges and crew boats.

Location plays an important role in Port Khalid's development plans for future growth, especially as Sharjah's industrial base has expanded in recent years, encouraged in no small part by the establishment of Sharjah Airport Free Zone and Hamriyah Free Zone. The emirate is also building the UAE's third container

terminal at Hamriyah Port, scheduled to become operational by September 2005. Hamriyah Port has a depth of 14 metres and handles non-containerised break bulk cargo, liquid petroleum gas and petrochemical vessels.

Sharjah is the only emirate with a port on both UAE coasts. Its East Coast port, Khor Fakkan Container Terminal (KCT), the only natural deep-water port in the region, is a dedicated container port. KCT has a strategic geographical position in the context of today's huge deep-sea container trade, being close to the main east-west shipping lanes and outside the sensitive Straits of Hormuz. A modern highway connects KCT with industrial and urban centres on the UAE's Gulf coast.

Already one of the top container trans-shipment hub ports in the country, KCT is being significantly expanded at a total cost of Dh300 million (US\$81.75 million). The project, the largest in the emirate, involves building new quays and a breakwater, reclaiming a 150,000-square-metre area to enlarge the storage area and the purchase of ancillary equipment, including new cranes. The new 16-metre deep quays will be able to handle the fourth generation of 400-metre ships, which can each carry about 8000 containers. The Khor Fakkan Container Terminal handled 1.6 million TEUs in 2004. This is expected to grow by 30 per cent by 2007. The first phase of expansion will be completed by the end of 2005, bringing the total numbers of quays to six. Total storage capacity after expansion will rise to 30,000 TEUs, and handling capability to 2 million TEUs a year.

#### AJMAN

Ajman Port, which also services Ajman Free Zone situated in the port, has eight berths designed to handle both container and general cargo. The port had a depth of 5 metres when it was first built, but this has been dredged to 8 metres. Plans are under way to deepen the port to 10.5 metres, enabling visits by 40,000–50,000 dwt (dead weight tonnage) ships up to 175 metres long. Incoming cargo is stored in large purpose-built warehouses covering an area of 43,200 square metres. There are also special facilities to handle cargoes of chemicals, waste paper and fodder.

The Port Authority has also set up two dry docks to provide maintenance and repair services. One berth is allocated for wooden boats and launches. Maintenance services are provided by firms such as Arab Heavy Industries Company, experts in the field of structural steel fabrication, tank and ship building and marine services.

#### UMM AL-QAIWAIN AND RA'S AL-KHAIMAH

Umm al-Qaiwain is well served by Ahmed bin Rashid Port and Ra's al-Khaimah by Mina Saqr, Ra's al-Khaimah Harbour and Al Jazeerah Harbour. Port Saqr is located in the Khor Khuwair industrial area 25 kilometres north of Ra's al-Khaimah City. Cement, marble and gravel from the nearby quarries and factories are shipped from the port. Ra's al-Khaimah accounts for half of the cement and clinker production in the UAE. Production facilities are running at almost full capacity,

and exports are growing at a rapid pace. The port is responsible for almost 90 per cent of the UAE's cement exports.

In 2004, Ra's al-Khaimah awarded Kuwaiti firm KGL a Dh165.15 million (US\$45 million) contract to build, operate and manage its container terminal at Port Saqr for the next 21 years. The contract involves investment of Dh55.05 million to build berths 8 and 9, Dh14.68 million to reconstruct berths 1, 2 and 3 and Dh11.01 million to build additional facilities for the port. Another Dh84.41 million will be spent on equipment.

The government has appointed Rotterdam Engineering Company of Holland to conduct a feasibility study on increasing the handling capacity of Ra's al-Khaimah's ports. While the plans involve creating another 500,000 TEU bulk handling capacity in the ports, the 10 million-tonne container handling capacity will be raised to about 30 million tonnes.

Ra's al-Khaimah Customs and Ports Department has also signed a Dh35 million deal to build a new 307-metre quay and increase the port's draught to 10 metres, enabling the port to handle vessels of up to 30,000 tonnes. A second phase of the development envisages the expansion of the quay by 500 metres to more than 800 metres.

#### FUJAIRAH

Fujairah Port commissioned an additional 150,000 cubic metres of onshore bunker storage facilities early in 2005, ensuring that it now ranks as the second largest bunkering centre in the world, supplying 12 million tonnes of fuel oil a year, worth US\$2.5 billion (Dh9.17 billion). Singapore remains the world's largest bunkering centre with a capacity of 19 million tonnes of fuel oil a year and Rotterdam is in third position with 10 million tonnes.

Dubai Ports International (DPI) took charge of the Port of Fujairah's container terminal in May 2005. In future, it will be known as DPA (Dubai Ports Authority)-Fujairah Terminal. Under a 30-year concession, DPI will spend more than Dh568 million (US\$155 million) to develop and operate the terminal.

Fujairah's deep-water facility has more than 1.3 kilometres of quay. Upgrades to the Fujairah terminal will include new super-post Panamax ship-to-shore gantry cranes and yard-handling equipment that will lift annual capacity to an eventual 1.7 million TEUs. While DPI will operate the container terminal, all non-containerised cargo will continue to be handled by the Port of Fujairah, such as general cargo, oil, aggregate and project cargo. The agreement between the Fujairah Port Authority and DPI also includes an option to mutually extend the concession by a further 20 years, potentially taking the contract through to 2055.