



Urban Planning in the United Arab Emirates and Ras Al Khaimah

Introduction

Established in 1971, the United Arab Emirates (UAE) is located in the Arabian Gulf and bordered by Saudi Arabia and Oman. Ras Al Khaimah is its fourth largest emirate in terms of area.

The UAE has urbanized rapidly over a comparatively brief time frame, propelled by an oil-based economy. The country scores highly on development indices due to rapid economic growth, high per capita income, and robust social development. According to the 2013 Human Development Index Report compiled by the United Nations Development Programme (UNDP), the UAE has risen in rank to occupy the 41st position among the developed nations of the world.

Environmental governance in the UAE began in 1975, when the Ministry of Health set up the Higher Environmental Committee. The Federal Environmental Agency (FEA) replaced this in 1993 with the purpose of setting environmental laws, regulations, and management systems to achieve environmental sustainability. The FEA was also responsible for setting requirements for incorporating environmental considerations into the country's urban development policies. Overall, there is a move toward consistency in establishing environmental policy across the federation, although each emirate retains, constitutionally, a certain degree of autonomy.

The more delicate an environment is, the more crucial effective regulation of that environment becomes. The harsh and variable

climatic and environmental conditions that prevail in the Emirates make stewarding the country's natural resources and ecosystems challenging. Over the last several decades, disturbances of the ecological equilibrium have damaged natural resources, which ultimately affects urban development. Such disturbances include the increase of human and livestock populations, the excessive use of groundwater resources, and the absence of clearly defined policies for resource management. Major environmental concerns in the Emirates include:

- Depletion and degradation of water
- Soil salinization
- Sand dune encroachment
- Destruction and degradation of natural vegetation and wildlife

Urban Planning in the United Arab Emirates

Abu Dhabi

Abu Dhabi and Dubai represent the UAE's largest emirates. The Abu Dhabi Urban Planning Council (ADUPC) is the agency responsible for the future of Abu Dhabi's urban environments and the expert authority behind 2007's Abu Dhabi 2030 Urban

Structure Framework Plan. The Urban Planning council ensures factors such as sustainability, infrastructure capacity, community planning, and quality of life by overseeing development across Abu Dhabi. The Urban Structure Framework Plan is grounded in the cultural and environmental identity of Abu Dhabi and provides conceptual solutions to shape the growth of Abu Dhabi over the next quarter of a century. These solutions first address the major issues that shape urban form—the environment, land use, transportation, and the capital city image. The plan's key directions include sustainability, environmental uniqueness, evolving culture, identity and opportunity, excellence and livability, and connectivity. (ADUPC, 2007, p. 10)

Dubai

The emirate of Dubai has become an international hub and has experienced tremendous urban growth over the past two decades. Since the 1990s, Dubai has pursued an aggressive economic diversification agenda, at the core of which has been an immense program of urban development (Buckley, 2009). Funded heavily through international debt capital, and driven primarily through newly-liberalized and internationalized real estate markets, the array of mega-projects underway in recent years has brought construction and real estate to the fore as two of the

Table 1: Environmental Institutions in the UAE (Adapted from AGEDI, 2008)

Competent Authority	Date of Establishment
Ministry of Environment and Water (MoEW)	1992
Federal Environmental Agency (FEA)	1993
Environmental Research and Wildlife Development Agency (ERWDA), Emirate of Abu Dhabi	1996
Environment and Protected Areas Authority (EPAA), Emirate of Sharjah	1998
Environmental Protection and Development Authority (EDPA), Emirate of Ras Al Khaimah	1999
Environment Departments at Dubai, Ajman, Umm Al Quwain, and Fujairah Municipalities	Various

most important non-oil sectors in the city's economy (Wigglesworth & Kerr, 2008).

Unlike Abu Dhabi, Dubai has not made its most recent urban plan, the Dubai 2020 Urban Master Plan, publicly available. Based on the plan's short summary, the 2011 document seems to envision Dubai as a modern Arab city and a vibrant regional gateway (Government of Dubai, 2012). The vision hopes to promote social, economic, and environmental sustainability by directly addressing transportation, housing affordability, cultural integration, and waste management issues, and it is the first plan to mention any of these key issues (Elsheshtawy, 2010). Nevertheless, the city's urban development plan will need to be revised in light of the impact of Dubai's hosting Expo 2020.

Urban Planning in Ras Al Khaimah

For hundreds of years, Ras Al Khaimah has been a prominent historical site in the Gulf region. Its geographically advantageous location made it an attractive trade route to settlers from across Asia, Africa, and Europe. In the past, Ras Al Khaimah's accessibility enabled it to flourish more rapidly than did other emirates, and it was historically a wealthy emirate.

Nestled in the northern part of the UAE, Ras Al Khaimah remains the fourth-largest emirate in the federation, occupying 2,478 square kilometers. It has a population of approximately 422,000, which was last recorded in the latter part of 2012 (RAKDED, 2012). Furthermore, the rural population of Ras Al Khaimah is estimated to stand at 195,000 while the urban population stands around 224,000. Of the total population, it is also estimated that approximately 99,500 are U.A.E. nationals (RAKDED, 2012).

With limited amounts of oil and gas reserves compared to other emirates, Ras Al Khaimah has diversified its economy, investing heavily in tourism, industry, and other sectors.

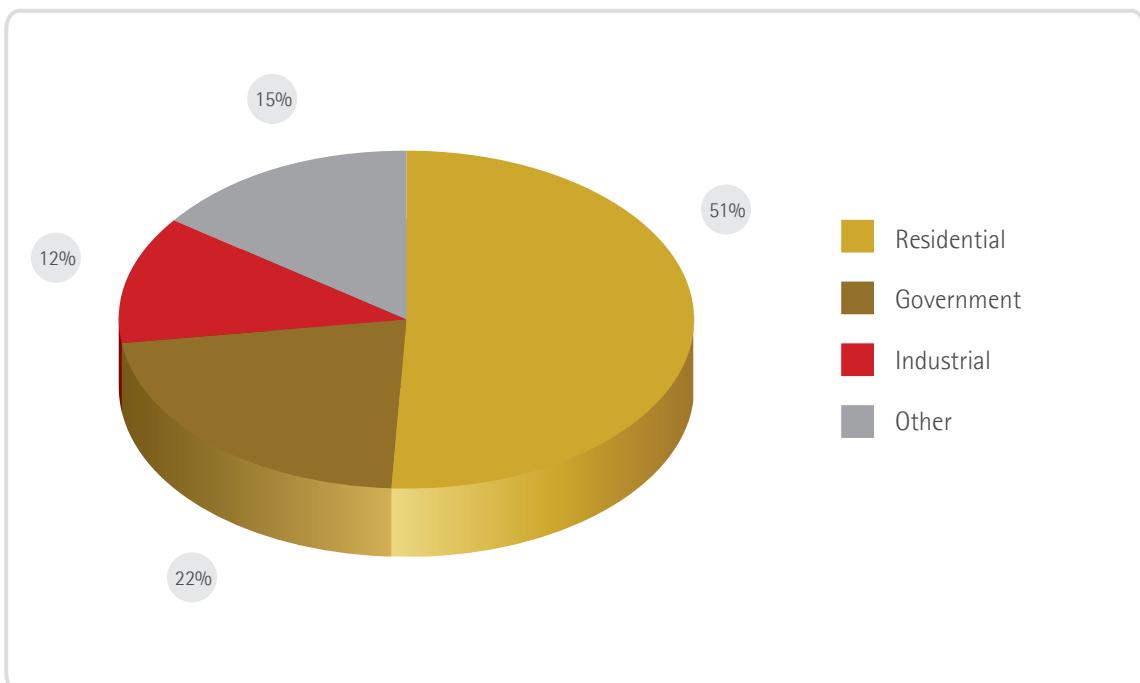
Key Planning Issues

Ras Al Khaimah's strategic urban planning remains a priority for the emirate's Project Management Office (PMO), a sector of the Ras Al Khaimah Municipality. In order to fully understand the context of urban planning in Ras Al Khaimah, it is vital to explore the Structure Plan for Ras Al Khaimah Urban Area (Government of Ras Al Khaimah, 2004). Although the report is outdated, it provides the only concrete vision of what is being done in the context of urban planning in Ras Al Khaimah, as it serves as the basis and the manual for urban planning in the entire

Table 2: Elements of the Structure Plan (Government of Ras Al Khaimah, 2004, pp. 1-11)

Land use	Extent, condition, and distribution of land uses in the urban area
Housing	Housing conditions including existing housing stock, as well as the assessment of current needs and demands for residential land uses to accommodate nationals and expatriates
Transportation	Circulation systems including roadway networks, public transit, taxis, abras (boats), ports and the airport, and pedestrian movement
Infrastructure	Utility systems including water supply and storage, wastewater, irrigation and drainage, solid waste, electricity supply, street lighting, and telecommunications
Community facilities	Public facilities and service systems including education, religion, healthcare, fire, police, postal service, parks and recreation, libraries and cultural facilities, and municipality services and facilities
Industrial development	Extent, condition, and distribution of industrial uses in the urban area
Environmental resources	Condition and conservation of natural resources in the urban area

Table 3: Land Use in 2003 (Government of Ras Al Khaimah, 2004, pp. 4-5)



emirate. It is also important to note that, as of 2014, the Municipality has been working to update the 2025 plan.

Urban growth boundaries serve to direct, in an efficient and rational manner, growth to areas that can be best served by the logical extension of roads and infrastructure. Additionally, growth boundaries

help to protect and conserve land that represents important ecological, tourism, and/or agricultural resources. At the time of the development of the Structure Plan in 2004, these boundaries did not exist, and a set of community boundaries had also not been determined.

Table 4: Summary of Population and Household Projections for 2025
(Government of Ras Al Khaimah, 2004, p. 5-5)

Factor	Quantity
Projected population (emirate)	603,000
Projected population (Structure Plan area)	577,200
Number of total households (emirate)	113,700
Number of total households (Structure Plan area)	108,710
Number of national households (Structure Plan area)	16,490
Number of expatriate households (Structure Plan area)	92,250



Land Use

The main land uses and a set of generalized land use categories include: agricultural, commercial, conservation, government, industrial (heavy), industrial (light), land fill, open space/buffer, recreation, residential (low), residential (medium), residential/commercial, and tourism.

The following statistics come from the Structure Plan and are an outcome of the land use analysis done in 2003 as part of the baseline study in preparation for the Structure Plan. In 2003, residential uses comprised the highest percentage of land use at 51%. Governmental land uses such as the airport, power plants, ministries, schools, and mosques made up the second largest component of existing land use, comprising about 22% of total developed land. Furthermore, industrial land use comprised 12%. The remaining land uses, totaling 15%, included land use for commercial sites, palaces, historical places, and cemeteries. (Government of Ras Al Khaimah, 2004, pp. 4-5).

Housing

Housing represents the largest use of land in Ras Al Khaimah's urban area, and it raises unique policy and land use issues related to future development. The Structure Plan created in 2004 treats housing for nationals and housing for the expatriate population separately. Within the UAE, the government of each emirate is responsible for providing housing for nationals, in line with the UAE's federal housing policy. In addition, initiatives of His Highness Sheikh Khalifa bin Zayed Al Nahyan and the Crown Prince's Court of Abu Dhabi make housing provisions for U.A.E. citizens in the northern emirates. The Sheikh Zayed Housing Programme is an extensive initiative set up to provide stable housing, with plots of approximately 900 square meters, for nationals across the UAE.

Housing for expatriates, on the other hand, is provided by the private sector based upon market demand. In 2003, it was estimated that there were 9,200 expatriate households in the study area. Estimates within the Structure Plan indicate that there will be a

need for 87,255 new homes for expatriates by 2025 (Government of Ras Al Khaimah, 2004, p. 5-5). Table 4 shows a summary of population and household projections for 2025 (Government of Ras Al Khaimah, 2004, p. 5-3).

Unlike other elements of the Structure Plan, the Ras Al Khaimah government has maintained relatively specific policies for the provision of housing, particularly for nationals. Current nationals' housing policies have dramatic effects on urban form and structure, efficient land utilization, environmental resources, and, ultimately, the cost of development. Because housing policies for nationals are set at the federal level, there are limits to the Structure Plan's ability to address them. Nevertheless, the land policy issues related to housing that remain to be addressed include:

- Large undeveloped areas, which have been distributed for nationals' housing
- Distribution policies for nationals' housing
- Lack of housing for expatriates
- Substandard housing stock

Transportation

Like most cities in the GCC, Ras Al Khaimah is auto-dependent. The region's climate, the relative affordability of vehicles and fuel, and cultural norms contribute to this dependence. Additionally, taxis are an important part of the urban transportation system, catering to a high percentage of expatriates who do not own personal vehicles. Unless conditions change drastically, Ras Al Khaimah will likely continue to be an auto-dominated city in the future. On the other hand, public transportation can have an important role to play in responding to the projected increase in the expatriate population, a proportion of which will likely not be able to afford private automobiles. Compared to Dubai, Abu Dhabi, or Sharjah, Ras Al Khaimah's overall level of traffic is light due to the comparatively low density of the city.

Infrastructure

Within the Structure Plan, infrastructure is subdivided into water supply, sanitary sewerage, drainage and irrigation, solid waste management, electricity, and telecommunications.



Water supply

The provision of an adequate supply of water and electricity is a prerequisite for urban development, especially in desert regions. Vital social services and the tools of economic diversification such as tourism, agriculture, and industry are all dependent on continued investment in the water and electricity sector. The Federal Electricity and Water Authority (FEWA) supplies a major portion of the water needed in Ras Al Khaimah.

The UAE has one of the highest rates of per capita consumption of water in the world (WWF, 2006), which makes it imperative that future policy be directed towards facilitating a more sustainable use of the already dwindling water supply. Ras Al Khaimah is an example of a desalination-dependent city. At the time of the production of the Structure Plan, Ras Al Khaimah had a desalination capacity of nine million gallons per day, produced by four different desalination stations.

However, the Structure Report projects that, by 2020, the demand will have more than tripled, meaning another 25 MGD of capacity will be required to serve the population's water demands (Government of Ras Al Khaimah, 2004, pp. 7-26).

Issues associated with the water supply include the quality of fresh water from aquifers, the quantity of supplies, and the lack of direct control over water production. The water supply is not under the direct jurisdiction of the Ras Al Khaimah government, nor is the local government directly fiscally responsible for FEWA's operations. Nevertheless, Ras Al Khaimah's high per capita consumption rate necessitates the exploration of alternative water management strategies for the emirate.

Furthermore, Ras Al Khaimah's agricultural sector has been plagued by water shortages over the years due to excessive ground water extraction used for irrigation as well as the expansion of agricultural projects. Even if all domestic and industrial wastewater were to be collected and treated as treated sewage effluents (TSE) and then used for agricultural irrigation, only about half of the sector's requirement would be supplied. If groundwater extraction continues to greatly exceed recharge rates, Ras Al Khaimah's agricultural sector will be greatly impacted.

Sanitary sewage

Currently, Ras Al Khaimah has over 300 kilometers of water networks in Ras Al Khaimah City, including three pump stations, ten lifting stations, and an upflow anaerobic sludge bioreactor wastewater treatment plant located in Fileya that handles 25,000 cubic meters of water each day.

At various locations, Ras Al Khaimah also has approximately 15 other treatments plants that treat a total of about 10,000 cubic meters of water each day. Additionally, Ras Al Khaimah has vacuum wastewater networks in Al Hamra, Marjan Island, and the Investment Authority. In Khatt, the Sewerage Authority also has a gravity network and a small treatment plant. A vacuum network in Al Ghail has also been proposed but has not yet been commissioned.

Drainage and irrigation

The Ras Al Khaimah urban area does not have an irrigation network since there is not yet a sewage collection network. Current irrigation is supplied for specific areas in the form of either potable water or wells. Ras Al Khaimah does not have a storm water drainage system.

Eventually, planners hope that the Ras Al Khaimah drainage system will include several components: natural slope drainage, artificial surface drainage, piped drainage for storm water, and groundwater dewatering systems. During the region's infrequent rain events, localized flooding does occur.

The Structure Plan recommends that the development of an irrigation system network should go hand-in-hand with the development of the sewage system (Government of Ras Al Khaimah, 2004, pp. 7-30). Given the problems related to groundwater depletion due to agricultural requirements, excess irrigation water should be made available either for direct use by agricultural irrigation (which would require costly and extensive network expansion) or be used for recharging aquifers. Excess irrigation water could also be made available as cooling or process water for industrial developments and/or power plants.

Solid waste management

Based on preliminary findings at the time of the report, it was estimated that Ras Al Khaimah was likely generating 900-1,000 tons of solid waste per year (Government of Ras Al Khaimah, 2004, pp. 7-32). This is not surprising since, despite its small population, the UAE has one of the highest per capita waste generation rates in the world (Todorova, 2013). Solid wastes are composed of municipal solid waste (household, commercial, and some industrial debris); construction debris (as much as 70% of the total); street cleanings refuse; and landscape (green) waste (Government of Ras Al Khaimah, 2004, pp. 7-32). Other waste includes toxic waste, septic tank sludge, effluent, and scrap automobiles.

The Ras Al Khaimah government has implemented an Integrated Waste Management Project (IWDP) that combines regulatory, monitoring, and compliance functions with emission controls, waste collection, and safe disposal. The Public Works and Services Department (PWSD) is responsible for the implementation of the IWDP. In addition, Ras Al Khaimah has constructed a new landfill, which is lined to prevent soil, water, and air contamination and conforms to the United States Environment Protection Agency (USEPA) specifications. This site replaces the old, unlined dump, which is being closed. The new landfill has been designed to have a 50-year life.

Electricity

Formerly, FEWA provided electricity from its main power plants at Al Nakheel and Ghalilah. However, both plants have been recently de-commissioned with plans for the development of new reverse-osmosis plants. Nevertheless, the FEWA Al Nakheel Power Plant had a total installed capacity of 387 MW in 2012, with a total utilized generation capacity of 182 MW.

A project is underway to meet the requirements of the northern emirates and also to meet the statutory obligations of the agreement between FEWA and the Abu Dhabi Water and Electricity Authority. This project will rely on the 400 kilovolt network, which connects Fujairah's power structure to the rest of the northern emirates.

Another project has been planned in order to create an inter-emirate power grid, which, when fully connected, will provide much greater capacity to Ras Al Khaimah. The Emirates National Grid Project (ENG) will serve to establish a single national power network for the whole country, thereby ensuring uninterrupted power to all emirates (Government of Ras Al Khaimah, 2004, pp. 7-26). The project will also facilitate the UAE's plans to link up with the Gulf Cooperation Council's power grid, which would further improve performance and reliability throughout the country.

Table 5: Percentage Distribution of Employment Population by Economic Sector in Ras Al Khaimah 2012 (Government of Ras Al Khaimah, 2013)

Demographics	Percentage
Males as percentage of work force	82.5%
Females as percentage of work force	17.5%
Employment rate in urban areas	66.5%
Employment rate in rural areas	62.5%



Image credit: Philip van der Merwe

Telecommunications

Etisalat provides telephone, telegraph, teleprinter signals, radio, and multi-media communication services and facilities throughout the UAE. It has recently ceased to maintain a monopoly on such services, but, for practical purposes, remains the only major provider of these services apart from Du. However, the increasing use of mobile phones is requiring the construction of additional Global System for Mobile Communications (GSM) towers (Government of Ras Al Khaimah, 2004, pp. 7-38).

Community Facilities

Community facilities in this context encompass educational facilities, religious facilities, health care facilities, postal services, fire and police services, municipality branches, parks, recreation sites, libraries, and cultural facilities. The primary purpose of this element in the Structure Plan was to ensure that adequate land is available in appropriate locations for community facilities. Subsequent to the Structure Plan, additional plans will be required on a more detailed level to determine more precise programming requirements.

Industrial Development

Ras Al Khaimah boasts the largest rock quarries in the Gulf and has abundant high-quality carboniferous and dolomitic limestone, gabbro, silica rock, and clay deposits, which underpin the emirate's successful cement and ceramic industries. Hence, mining remains a significant primary industry in the emirate. The UAE's two largest cities, Abu Dhabi and Dubai, are significant markets for these resources, but Qatar, Kuwait, and Bahrain also rely on material from Ras Al Khaimah for their construction requirements.

The industrial development of Ras Al Khaimah benefits the emirate's residents by contributing to the local economy. Most existing industrial land use takes place in four general locations within the urban area:

- Heavy industries (port, cement, and quarries) are located at **Khor Khwair/Port Saqr** in the north. Adjacent is Ras Al Khaimah Maritime City Free Zone and Ras Al Khaimah Free Trade Zone industrial parks. Completed in 2011, Ras Al Khaimah Maritime City is the latest maritime city added in the Emirates, covers

an area of up to eight million square meters, and accommodates a number of prominent international maritime companies.

- The southeast area of **Al Khor**, near the new Tower Links golf course and the across from Ras Al Khaimah's mangroves, is home to light industries and a variety of warehousing operations
- Manufacturing industries exist near **Al Jazeera Al Hamra**. These industries include RAK Ceramics, the RAK Free Trade Zone Technology Park, Guardian Glass, Arc International, and Majan Printing and Packaging.
- The **Al Ghail Free Zone**, which is further inland, covers 400 hectares, and hosts companies such as Ashok Leyland.

In addition, a large industrial area in the southern part of the urban area, behind RAK Ceramics, has been designated for future industrial use, and three major industrial estates are being planned for the northern, central, and southern regions of Ras Al Khaimah.

Environmental Concerns

Any industrial development involves considerations related to environmental protection. In the UAE, these concerns are prioritized at national and local levels. The local environmental enforcement agency (EPDA), in conjunction with the Federal Ministry of Environment and Water (MoEW), regulates industries in the UAE.

Mining and cement industries bring particular concerns, and the MoEW introduced a series of environmental regulations between 2008 and 2015 to guide the planning and operation of these activities. Within these guidelines there are a number of recommended practices—for example, quarry rehabilitation and emission standards for cement plants—that contribute to the sustainability of these industries.

The World Bank's *Little Data Book 2015* gives key environmental data for over 200 countries. This document highlights the UAE's national concerns about air quality, which is affected by both natural and man-made phenomena. In light of this, industry should make voluntary efforts to improve national



air quality standards in addition to adhering to government standards. Stevin Rock and RAK Rock provide examples of the proactive efforts within Ras Al Khaimah's quarrying industry to pursue sustainable and environmentally responsible practices. To do this, these companies have embraced corporate social responsibility as a strategic priority. They have made considerable financial investment using best available technology and carried out extensive employee awareness training to reduce the effect of their operations on the environment.

Moreover, the local government has been actively involved in offering residents who live in proximity to quarries and cement factories new homes in more residential areas. The 2004 Structure Plan recommends that the remaining residential locations adjacent to Saqr Port be re-planned for heavy industrial use. As the industries in this area continue to develop, this recommendation is of increasing relevance.

Additional environmental issues specific to Ras Al Khaimah and its urban planning context relate to its coastal areas and waste management. As a coastal region with competing demands on land use, Ras Al Khaimah has seen its coastal areas suffer. This deterioration arises from both tourism and industrial developments, which may also threaten marine life and the natural biodiversity of the emirate. Ras Al Khaimah's heavy investment in industry has underscored the need to reduce industrial pollution, and the absence of a formal waste management system has highlighted the importance of sustainable waste management practices in the emirate.

Stakeholder Perceptions

Demographics

In recent years, the population of the UAE has been increasing at a rapid pace, due in large part to immigration from Asia and Europe. By the end of 2013, it was estimated that the total population stood at around 9.3 million (World Bank, 2014). The total number of nationals in the UAE at the end of 2010 was estimated to be only around 948,000 (U.A.E. National Bureau of Statistics, 2010). Non-

national males employed within the workforce constitute a large proportion of the total population of the UAE. Through urban development, the UAE has witnessed a large-scale construction boom because of the expansion of urban areas, facilities, and infrastructure needed to accommodate a rapidly growing nation.

Demographically, Ras Al Khaimah has recently attracted different groups of individuals to reside and work within the emirate. By the end of 2012, approximately 322,500 of the total population of Ras Al Khaimah consisted of non-citizens, having grown from 71,600 in 1995 (RAKDED, 2012). The economically active population (15+ years of age) was also examined by nationality and gender. 78.3% of this total population (citizens and residents) consisted of individuals who were at least 15 years old while 84.9% of the total non-citizen population consisted of the same demographic (RAKDED, 2012). In comparison, only 59.7% of the total citizen population (Emiratis) consisted of those who were at least 15 years old (RAKDED, 2012).

As a result of immigration, Ras Al Khaimah's total labor force has increased. Between the years of 2009 and 2012, it was estimated that the total labor force in Ras Al Khaimah increased from 135,000 to 207,960 individuals (RAKDED, 2012). By the end of 2012, 82.5% of the total labor force consisted of males (RAKDED, 2012). In 2012, reports indicate that 66.5% of individuals in the urban areas were employed, while only 62.5% of individuals were employed in the rural areas (RAKDED, 2012). Table 5 shows the percentage distribution of employment by economic sector in Ras Al Khaimah for the year 2012.

Between 2009 and 2012, the estimated number of industrial firms in Ras Al Khaimah increased from 168 to 2,235 (RAKDED, 2012). However, the most recent strategy laid out by His Highness Sheikh Saud bin Saqr Al Qasimi involved reducing the emirate's reliance on industry and encouraging growth in a variety of other sectors. As a result, planning is underway to define how these sectors can work in harmony to create a functional city—one that generates income, provides an agreeable home for its residents, and constitutes an attractive tourist destination.

In the early 2000s, in order to better understand neighborhood dynamics, efforts were made to discern which areas of Ras Al Khaimah were inhabited by Emiratis and which were favored by expatriates (Government of Ras Al Khaimah, 2004, pp. 2-46). Relatively high percentages of households of U.A.E. nationals were found in Al Dhait, Al Rams, and Khuzam. High percentages of households headed by expatriates were found in Al Nakheel, Al Mamourah, and Ras Al Khaimah City; these three areas are each located near the city center. One of the older areas of the city, the Old Town District, has a large population of expatriates from the Indian subcontinent. Al Mamourah, on the other hand, is a busy and more recently developed urban area populated mostly by Emiratis and expatriates who live in Arabic-style houses.

By contrast, Khuzam is a neighborhood that is mostly populated by Emiratis and some Western expatriates. Buildings in Khuzam appear mostly in the Arabic style. Finally, the Corniche area is also a prime spot for Western expatriates, and villas as well as high-rise apartment buildings are available there.

Since that time, these neighborhood dynamics have not changed much. High percentages of national households are still prevalent in Al Dhait and Al Rams areas, however national households have slowly moved away from the Khuzam area. Asian expatriates continue to populate the Old Town District and Al Nakheel area.

The southern region of Ras Al Khaimah has also grown rather recently and includes two sizable developments, Al Hamra Village and Mina Al Arab. A large proportion of the Western expatriate population now resides in these areas. Mina Al Arab offers a variety of housing options in addition to its shops and restaurants, which are integrated into apartment buildings. As a fully integrated community, Al Hamra encompasses 7.1 million square feet and includes 1.5 kilometers of pristine beaches, 1,089 villas and townhouses, 2,444 residential apartments, five resort hotels, an 18-hole golf course, a marina, and a shopping mall (Al Hamra Group, 2015a).

Al Qasimi Foundation Working Paper 06

In 2012-2013, research was performed as part of a seed grant from the Al Qasimi Foundation. Through this grant, preliminary efforts were made to profile the city of Ras Al Khaimah and its various neighborhoods based on residents' perceptions of and aspirations for the community. A summary report has been published, detailing resident preferences and suggesting ways to improve the city (ICOS, 2014).

At present, residents perceive Ras Al Khaimah as a predominantly industrial and trading place that is pursuing an economic development agenda (ICOS, 2014, p. 11). Surveys conducted highlight that residents would ideally like Ras Al Khaimah to develop into a place where family, tourism, and employment (in service, retail, and tourism sectors) are central to the overall structure of the emirate (ICOS, 2014, p. 11). Residents appreciate the relaxed way of life and the small-town feel of Ras Al Khaimah, which are exemplified by its quietness, natural beauty, and sense of stability (ICOS, 2014, p. 12). Yet residents would like to see the city become more family-friendly through the provision of adequate community facilities within neighborhoods and traffic calming measures (ICOS, 2014, p. 21).

At the neighborhood level, residents believe that it is crucial to enhance the liveability of all neighborhoods by upgrading the quality and appearance of the built environment, streetscape, and shared public areas and services (ICOS, 2014, p. 21). Residents also aspire to live in areas free from industrial activities and with more employment options that are closer to their neighborhoods (ICOS, 2014, p. 22). They aspire to live in mixed-use neighborhoods characterized by a higher density of people and the availability of both commercial and community facilities close to home, facilitating walkability throughout urban spaces (ICOS, 2014, p. 23).

Recent Projects

A variety of urban projects are currently underway in Ras Al Khaimah, many of which are being headed by the Project Management Office.



Image credit: Philip van der Merwe

Revitalization

As Ras Al Khaimah has grown over the last several decades, certain areas of the emirate have suffered from a lack of economic investment and other factors. Two of these areas in particular, Old Town in the original city and Al Jazeerah Al Hamra in the south, have great potential for revitalization.

Old Town

Ras Al Khaimah is currently witnessing an urban transformation process whereby the urban form of the city is growing rapidly. Part of the development planning policy agenda capitalizes on the revitalization of the Old Town District to restore its original importance (Seif, 2013). Emphasis is also being placed on the natural assets and strengths of the geographical location of Old Town and the potential of the area in contributing to the growing tourism industry in the near future.

The Ras Al Khaimah Municipality is currently working on the completion of a revitalization master plan for

the Old Town District of Ras Al Khaimah. In addition, the Al Qasimi Foundation's Policy Paper 07, *Urban Regeneration Case Study of the Old Town of Ras Al Khaimah*, addresses the revitalization of the area (Seif, 2013).

Al Jazeerah Al Hamra

As a traditional fishing village, Al Jazeerah Al Hamra embodies Ras Al Khaimah's rich history. Technically abandoned, the village remains standing in the form of a group of over 400 villas, shops, and restaurants (Zarifa, 2014). Because Ras Al Khaimah values the heritage and aesthetics of the village, efforts are being made to renew the area with an emphasis on water conservation and environmental sustainability, which many modern developments in the UAE have not embraced (Zarifa, 2014). The Sheikh Khalifa initiatives have already begun implementing improvements in the area.

Sheikh Zayed Housing Programme

The Sheikh Zayed Housing Programme was established to provide housing for U.A.E. nationals of different economic and social levels, prioritizing certain groups, including orphans, widows, the aging population, and individuals with special needs.

The vision for the program in Ras Al Khaimah incorporates the following (Ras Al Khaimah Municipality, 2013):

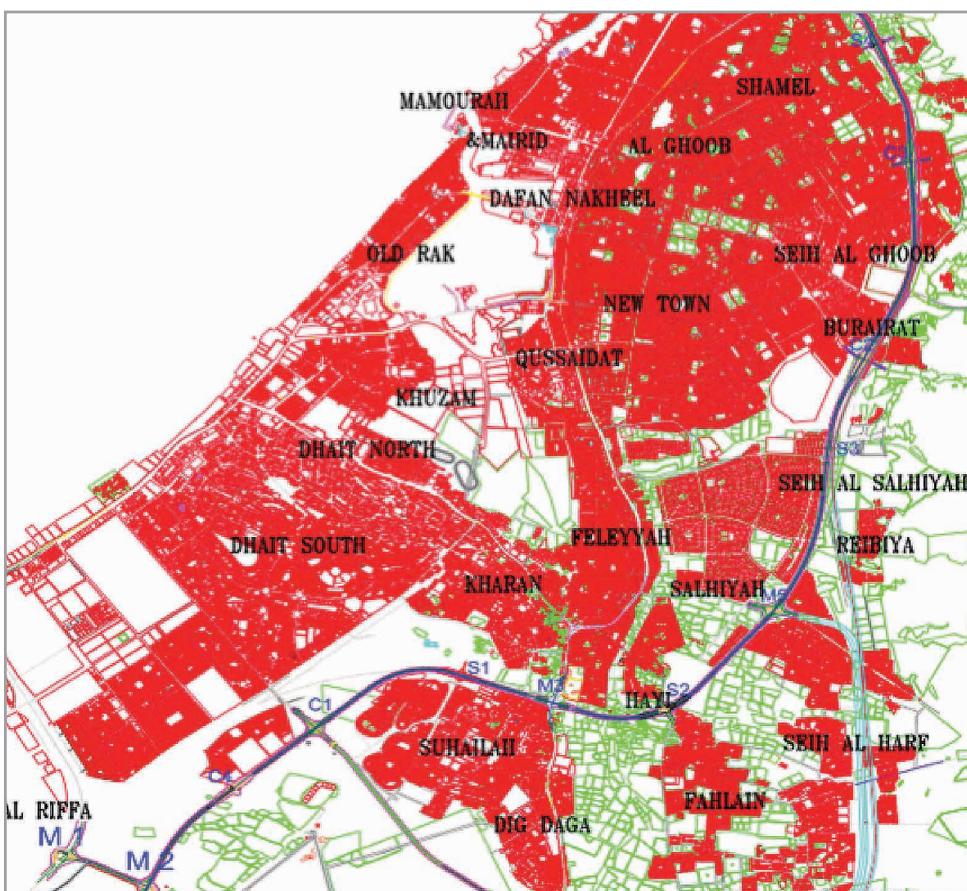
- Leading the way in the development of sustainable communities;
- Harmoniously integrating the natural ecology with parklands and open, green spaces and encouraging the safeguarding of the communities' natural assets for future generations; and
- Creating a new urban center typology as an example of a globally conscious and ecologically conscientious community development.

While the emirate's largest urban center has traditionally been Ras Al Khaimah City, these housing developments support the growth of new, mixed-purpose urban facilities. Not only does the Sheikh Zayed Housing Programme create residential communities that are closer to Dubai and Abu Dhabi—to which many Ras Al Khaimah residents commute for work—but it also builds the population near burgeoning centers of commerce and residence. In the southern region of the emirate, such commercial and residential areas include Mina Al Arab, Al Hamra Village, and Marjan Island.

Community Facilities Project

Community facilities and services that are accessible to all residents help create healthy and sustainable neighborhoods. These sustainable communities require suitable schools, health services, parks, transportation options, businesses, and housing opportunities. Recognizing this, Ras Al Khaimah Municipality is developing a project to raise the profile of community facilities, update existing

Figure 1: Ras Al Khaimah Ring Road



community facilities standards, and include such facilities in the city's spatial planning processes.

Residents of Ras Al Khaimah would like to see the city further cultivate the elements that make it family-friendly through the provision of more parks and higher education institutions, as well as the improvement of recreation facilities, health care facilities, and schools within their neighborhoods (ICOS, 2014). Residents would also like to see the creation of neighborhood sports facilities and commercial activities—including grocery stores, small retailers, bookstores, restaurants and coffee shops, pharmacies, and hairdressers—all within walking distance of their homes (ICOS, 2014).

Ras Al Khaimah Ring Road

The Ras Al Khaimah Ring Road consists of a 32 kilometer-long ring road that will join all internal and external road networks in Ras Al Khaimah. The project also includes the construction of several internal roads connected to the ring road. The road will serve effectively as an extension of Sheikh Mohammed bin Zayed Road (E 311) and will consist of six lanes (three in either direction) separated by a median barrier that could be converted into a fourth lane in the future (Sebugwaawo, 2011). The Ring Road will also connect to the Emirates Bypass (E 611).

The enhanced connectivity of the emirate following the opening of the new road is expected to accelerate the development currently being witnessed in Ras Al Khaimah. Particularly with the extension road leading to Saqr Port, it is believed that the Ring Road will encourage commerce. The project aims to ensure smooth travel and is expected to lessen the emirate's major traffic problems, including the burden of heavy trucks. The Ring Road will link loaded trucks coming from the Khor Khwair factories and quarries as well as the Al Rams areas to Sheikh Mohammed bin Zayed Road, thereby easing the traffic burden on the roads of Al Nakheel, Khuzam, and other areas while also reducing the number of vehicular accidents on Ras Al Khaimah's roads (Sebugwaawo, 2011). Residents from Shamal and other northern areas of Ras Al Khaimah travelling to Dubai, Sharjah, and other emirates will no longer have to drive through the busy streets of the city center.

Tourism

As part of developing its economy and community, Ras Al Khaimah has intentionally invested in tourism in recent years. One of these efforts is the Al Marjan Island mixed-used development, a waterfront resort and planned community situated on Ras Al Khaimah's first man-made archipelago of four coral-shaped islands on the southernmost edge of the emirate. The islands extend 4.5 kilometers into the sea and cover an area of 2.7 million square meters (Al Hamra Group, 2015b). The new development will foster social interaction, recreational activities, and seasonal entertainment, creating active frontages that energize Ras Al Khaimah's urban scene.

Like Marjan Island, Ras Al Khaimah's other resort areas cater to both visiting tourists and the emirate's residents by including restaurants, inviting outdoor spaces, and exercise facilities and by offering membership packages that provide year-round resort access.

Areas for Research

1. Land use research opportunities include:

- How to maximize the utilization of vacant areas that have been approved for use by and can accommodate more than double their current populations;
- How to address scattered development patterns that result in costly and inefficient expansions of roads and infrastructure;
- How to address ineffective zoning ordinances in order to guide the type and quality of development;
- How to formulate a clear strategy for future industrial growth;
- Conducting a land-use survey focused on identifying existing community facilities and their capacities as well as the need for additional facilities; and
- How to match the supply of land to demand related to its use. (For example, there is a general oversupply of retail space, a looming oversupply of hotel rooms, and an unbalanced supply of housing in Ras Al Khaimah.)



2. Environmental and agricultural research opportunities include:
- Suggesting alternative water-management strategies to protect the supply and quality of water in Ras Al Khaimah, particularly with regard to ground water;
 - Identifying crops that are highly draught and heat tolerant;
 - How to prevent further depletion of groundwater and irrigate crops with sustainable water practices;
 - How to minimize littering and uncontrolled dumping, which runs counter to the city's objectives of promoting tourism and eco-tourism; and
 - How to conserve land appropriately (for instance, the mangroves, which are situated at the heart of Ras Al Khaimah City).
3. Infrastructure research opportunities include:
- How to improve the connectivity of Ras Al Khaimah in terms of both roads and public transportation options;
 - Mapping traffic patterns and roads/intersections that are in the greatest need of improvement in terms of traffic flow and safety; and
 - Identifying traffic-calming and safety measures that can be implemented in Ras Al Khaimah.

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