

# Insight into and Impact of Abu Dhabi Municipality on Abu Dhabi City: An Interview with Abdulaziz Al Kindi, Senior Contract Manager

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## Introduction

Abu Dhabi Municipality emerged as the Department of Abu Dhabi Municipality and Town Planning in 1962. The vision of Abu Dhabi Municipality is to provide modern infrastructure and outstanding municipal services for a promising capital (2011). Abu Dhabi is the U.A.E capital city. It is a common misconception that Dubai is the capital however, with Abu Dhabi Investment Authority currently ranked the No 1 Sovereign Wealth Fund in the world, it is clear where the wealth really is, in Abu Dhabi.

Through a unique interview with Abdulaziz Al Kindi, a Senior Contract Manager, we gain insights into the current structure of the organization in addition to the true impact of the municipality on the capital city.

## Organizational Chart of Abu Dhabi Municipality

Abu Dhabi Municipality emerged as the Department of Abu Dhabi Municipality and Town Planning in the 1962. The first municipal board for Abu (?Dhabi) City was appointed in 1969 under the royal decree and 'Al Sunni Banga' was appointed as the first manager. The board was charged with the responsibility of offering comprehensive services to the public and ensuring proper planning and development of Abu Dhabi City, with maintenance services, regularized road networks, lighting works, sewerage, establishing public markets in different areas and launching of the Agriculture Development Plan. Since its inception, the Abu Dhabi Municipality has devised major objectives, including various projects' implementation targeted at developing modern city infrastructure such as road networks, drainage systems, and modern means of transportation, bridges, and development project consolidation. In addition, the municipality has been increasingly moving towards achieving the goals stipulated in the development plans. The priority of Abu Dhabi Municipality is to establish a suitable living environment for the

## Abstract

Abu Dhabi Municipality was established in order to develop the infrastructure of the city of Abu Dhabi and turn it into a modern city. Abu Dhabi Municipality has several sectors and each sector is in charge of numerous projects and activities. Through an interview with Abdulaziz Al Kindi, we gain a unique insight into the municipality, its structure and impact on Abu Dhabi City such as environmental awareness, creation and renewal of urban structures, transportation, road safety, demolition of illegal accommodation, agriculture control, and improving housing projects.

The report provides a worthy blueprint for other regional municipalities installing systems and structures.

residents of the Abu Dhabi City by establishing modern amenities (Department of Municipal Affairs, 2013).

### Vision

The vision of Abu Dhabi Municipality is to provide modern infrastructure and outstanding municipal services for a promising capital (Abu Dhabi City Municipality, 2011).

### Mission Statement

The mission of Abu Dhabi Municipality is to provide the residents of Abu Dhabi City with a healthy, quality living environment through innovative planning, improved infrastructure, and enhanced municipal services (Abu Dhabi City Municipality, 2011).

### Sectors of Abu Dhabi Municipality

#### Municipal Infrastructure & Asset Sector

The municipal infrastructure and asset sector consists of three major divisions, including the parks and recreation facilities division, municipal roads and infrastructure division, and the infrastructure and services coordination division.

#### Functions of the Municipal Infrastructure and Assets Sector

- To plan the development and prosperity of Abu Dhabi City to be one of the top five global capitals that provides the highest standard of quality services.
- To maintain operation, safety, and service levels to ensure that approximately eighty-five percent of the road network in the city meets the global standards that have been set for scale service roads.
- To achieve equilibrium between infrastructure and greenery to keep up with the growing population density by augmenting the rate of green area per capita.
- To prepare controls and programs to acknowledge, develop operations, and maintain management projects.
- To develop and train national staff in the arena of operation, design, implementation, and maintenance.
- To adopt current technological science in irrigation and agriculture to minimize maintenance and operating costs,

and to optimize water and minimize environmental degradation.

- To institute a database for road asset management to predict future service needs and maintenance requirements, thereby reducing public expenditure.

The functions of the Municipal Roads and Infrastructure Division include:

- To prepare a consolidated budget and master plan of infrastructure and road projects.
- To maintain local road networks to a level that meets the highest excellent standards and quality.
- To ensure the highest levels of road safety for all road network users.
- To recommend new projects that can improve roads and bridges network performance, to conduct primary studies as well as economic feasibility and technical studies, and to follow up improvement and development projects undertaken by service providers.
- To prequalify consultants and contractors to authenticate their competencies with regard to accomplishing various projects, and to endorse supervisory personnel and staff at site
- To organize reference terms to invite the participation of consultants in new projects, obtain the necessary approvals, and to bring together the list of consultants to be invited.
- To review and audit design plans and reports that consultants submit during the successive design phases, that is, initial, primary, and final, from all the perspectives of engineering, including materials, roads, traffic, sewage, traffic, and lighting.
- To follow up with consultants and contractors at construction and maintenance stage to ensure that there is conformity between contracts and projects, and to prepare periodical reports about projects being studied as well as the statistics needed by senior bodies.
- To manage maintenance and operation contracts of traffic systems and light signals in Abu Dhabi City.
- To supervise the removal and demolition of visible aspects that disfigure the general appearance of Abu Dhabi City

### Municipal Infrastructure & Asset Sector



### Process of a new project:

Abdulaziz Al Kindi explained how new projects are set in motion. According to his answers, the process is explained below:

There are three main parties involved in the process of a new project:

1. Clients
2. Consultants
3. Contractors

Abdulaziz explained that they must first generate an idea of the project and identify the required budget. He illustrated that every department proposes a budget to the main management, which is a committee who then proposes to the Executive Council. The proposals are then studied and determined before providing the funds.

After that comes the tendering process, which is finding a consultant to work on the design of the project and to supervise the operations performed through the project. With the tendering process, the client tries to find the best consultant with the lowest price and the best design.

After choosing the lowest bidder from the consultants, the chosen one must finish the final design needed for the project, then prepare all contractual documents needed for the contractor. After the final design and the tender documents are done, they will be used to ask for contract bidders who present their technical and financial reviews, which will then be revised and scored to find the best bidder. After the contractor is chosen, the contract will be signed between the client and the contractor allowing him to start working on the project.

The consultant is also responsible for estimating the cost of the project and to supervise the operations done by the contractor. However, not all contracts indicate that the consultant who designs the project does the supervision; there are some contracts that hire one consultant to design the project and another one to supervise the operations.

### Support Services Sector

The functions of this sector include the following:

- Devising strategies to provide all the required services to the municipality
- Supervising quality and performance across the various divisions of the sector

The divisions of this sector include accounting, technical planning, legal affairs, facility and security, human resources, and procurement divisions. The functions of the procurement division include:

- Conducting tender contracting and limited methods of procurement together with other projects within the municipality
- Organizing procurement processes for all affairs in the municipality
- Coordinating procurement activities within the division
- Checking specifications of purchased items
- Gathering information about specific items, maintain suppliers' list, and establish strong relations among them to seek appropriate quotations.
- Negotiating with suppliers and contractors after committee approval
- Studying and analyzing purchased items based on price, quality, and terms of delivery to ensure coordination within the division.
- Receiving applications from various divisions, studying them, and providing all information and data regarding suppliers and materials.
- Issuing purchase contracts and orders
- Supervising and updating contractor and supplier list
- Setting up the annual plan for procurement

The procurement division provides several services, including supplier registration with ADM, rice purchase from ADM, rice distribution cards, tenders participation, and selling of disposable materials through tenders.

### General Manager Division

General Manager Offices are as follows:

1. Investment Office
2. General Manager Office
3. The Marketing and Corporate Communication Office
4. Project Management Office
5. Internal Audit Office
6. Advisors Office

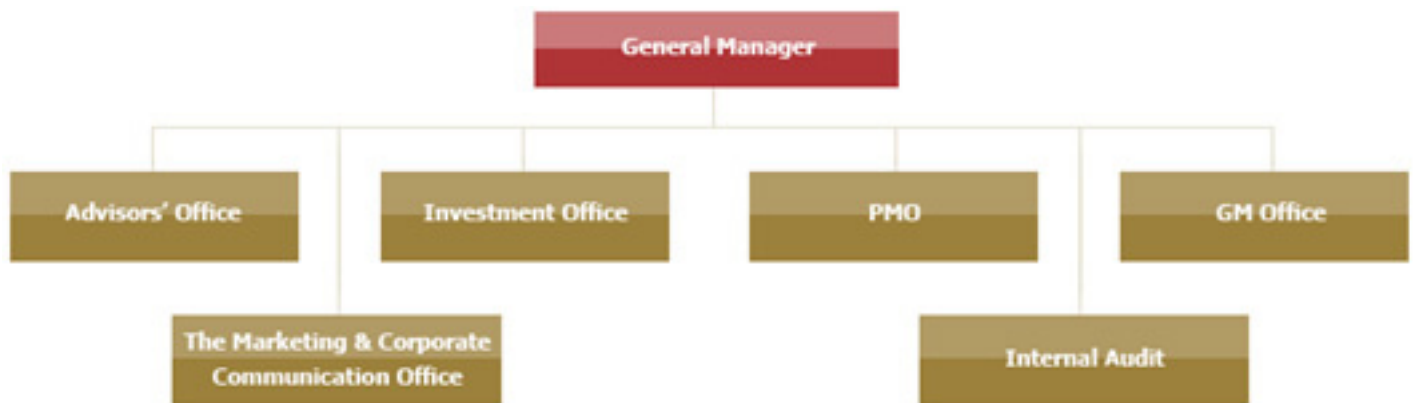
The general manager's office performs the following functions:

- Directing development of long-term and short-term plans, policies, and objectives
- Ensuring effective implementation of the municipality's mission and vision
- Coordinating the alignment of the work of various sectors with set objectives, policies, and goals
- Monitoring the performance of financial and strategic plans based on established objectives and ensuring that there is identification and implementation of action plans as appropriate

## Support Services Sector



## General Manager Division



## The Municipal Services Sector



## Strategic Planning and Performance Management Sector



## Town Planning Sector



- Directing as appropriate to ensure that outputs and results are achieved based on the operating budget
- Ensuring that there is proper planning and delivery of municipal services to all citizens
- Coordinating the development and maintenance of infrastructure and assets of the municipality, as well as proper planning within the municipality
- Representing the municipality in all executive level meetings as well as external organizations and departments

### The Municipal Services Sector

The Municipal Services sector consists of the following divisions:

1. Community Services Division
2. Customer Services Division
3. External Service Centers Division
4. Public Health Division
5. Lands & Real Estate Division

The functions of the municipal services sector include the following:

- Supervising property and land management, including allocation and registration
- Supervising high service level activation to ensure successful community services
- Leading the establishment of comprehensive services centres by providing integrated municipal government services
- Using indirect service channels to supervise service provision
- Supervising quality control programs in services

### Strategic Planning and Performance Management Sector

The Strategic Planning and Performance Management sector is composed of the following divisions:

1. Corporate Excellence Division
2. Financial Planning Division
3. Strategic Planning Division
4. Performance Management Division

The functions of the planning and performance management sector include the following:

- Developing the municipality's strategic objectives
- Overseeing the development of the five year strategic plan and detailed annual plan of the municipality
- Overseeing the municipality's development and formulation of financial projections and plans
- Improving policies, procedures, and implementation mechanisms as well as development frameworks within the municipality through supervision
- Supervising communication plans and public relations within the municipality

### Town Planning Sector

The Town Planning sector consists of the following divisions:

1. Spatial Data Division
2. Urban Planning Division
3. Construction Permits Division

The town planning sector performs the following functions:

- Detailed planning, managing processes, division of urban uses, and issuance of relevant rules and policies
- Managing spatial data establishment, distribution, updating, and maintenance
- Issuing building permits
- Managing segments and paths of various service lines

## Recently Completed Projects

The following completed projects are stated in Abu Dhabi Municipality's websites:



### 1. Al Mafraq Multi-Layer Interchange Project

The project is vital in Al Mafraq area and Abu Dhabi.

This bridge made a huge difference in Al Mafraq area. This singular intersection will be replaced with a multi-layer intersection to make the traffic flow smoothly. Abu Dhabi police estimated that 24 thousand vehicles pass by every hour. The project costs about 830 million DHS. According to engineer Abdullah Al Shamsi, Acting Executive Director of Municipal Infrastructure and Assets Sector: *"The Project comes in the context of the Municipality's multiple contributions and pioneering projects to develop the city in keeping with the economic & social drive, improve the quality of services in the capital and renovate roads and infrastructure sector."*



### 2. GPS Reference Station Network Project

#### Geographical data reference

The geographical data reference provides the Abu Dhabi Municipality with accurate data that will help them develop the Emirate of Abu Dhabi. Municipality of Abu Dhabi City, Dubai Municipality, Al Ain Municipality and Western Region worked hard to complete this project as early as possible to start working with it and make use of it to develop the UAE. This project took eight months to be completed and is now operational.



### 3. Electronic building permits system

The main purpose of the new Building Permits e-System is to save hours of valuable time waiting in queues. It also saves the effort of the client to wait for a long period of time to complete paperwork. Creating a username and a password and logging in can allow you to use the electronic building permit system. While the client is logged in they will be eligible to use it and the municipality will handle the rest after they receive the order of the client.



#### 4. Sheikh Zayed Bin Sultan Al Nahyan Mosque

It is one of the valuable landmarks in Abu Dhabi. This mosque was funded by His Highness Sheikh Zayed Bin Sultan Al Nahyan, may he rest in peace. The mosque has broken a lot of records with their hand made carpet, dome and chandelier in both diameter and height. It is one of the symbols that the UAE is famous for.



#### 5. Sheikh Zayed Bridge (3rd Crossing)

The bridge was created by Zaha Hadid and was designed in a remarkable way, featuring creative artistic methods. It is expected that this bridge has a lifespan of not less than 120 years and it handles wind speed of 160 KM/h.

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### Current Projects

Abdulaziz describes the current projects, listed below:



#### 1. Mohammed Bin Zayed City Project

Mohamed Bin Zayed City is one of the emerging cities that Abu Dhabi Municipality is willing to complete. Abu Dhabi Municipality has a vision to build a city that is completely different from standard living. To reach their goal in making this city achieve most prestigious services and the best living standard, the city will include a number of iconic and tremendous residence buildings. The city will be holding 349 gigantic residential towers. While the city holds approximately 5.8 million square meters, it is expected to hold nearly 85,000 population. Mohamed Bin Zayed city will be one of the social aspects that the municipality is willing to complete. The city will allow its inhabitants to have a royal lifestyle with the best services that they can find. Adding to that the city will hold a very promising and remarkable working environment.

## 2. Sheikh Zayed Street & Tunnel

Sheikh Zayed street & tunnel will be developed to make the traffic flow in a very easy way thanks to the vital structure and the artery of traffic movement. Sheikh Zayed Street & tunnel will help Abu Dhabi city to provide to the people a very high quality of transportation services. To complete the project and achieve it, three government departments: Municipality of Abu Dhabi City, Abu Dhabi Urban Planning Council and Department of Transport worked together.



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#### 4. Road Maintenance Projects (Ongoing)

##### a) Mainland

a. Area 1, 2 and 3: Yas, Mohamed bin Zayed, KCA, KCB, Musaffah Industrial, Musaffah Commercial, Bain Al Jesrain, Officers City, etc..

b. Area 4, 5 and 6: Shahama, Wathba, Baniyas, Al Rahba, Al Falah, Shamkha, Shawamekh etc..

##### b) Island

a. All areas

#### Overall Responsibilities of Abu Dhabi Municipality

According to Rafi (2013), Abu Dhabi municipality performs the following responsibilities:

##### ∅ Land Identification

Under this role, the municipality is responsible for documenting and recording territory allocated public housing, residential land, commercial land, industrial land, public utility, agricultural land, and land trade following adoption.

##### ∅ Land and Real Estate Transactions

Under this role, the municipality is responsible for buying, selling, and recording based on court ruling, temporarily customizing the territory, decoding booking land, recording booking land, recording booking owner, recording irreversible and donations, decoding booking owner, and recording inheritance and estates. It is also responsible for registering industrial land, recording leases, recording purchases and sales, registering and redeeming mortgages, modifying mortgage data, changing mortgage value, withdrawal of land, and commanding records.

##### ∅ Public Services

Under this role, the municipality is responsible for certificate property and ownership coupon, land housing waiver, completing transaction during the transition from employee to customer site, ordering a copy of real estate and land documents, and modifying ownership data or name. It is also responsible for certifying scheme site, certificate search, property valuation certificate, community services, book parks visits, book and visit beach, booking visit venues, and servicing community and sports activities, public health, servicing morgue, and servicing recreational and cultural activities. In addition, it is responsible for setting a diseased body for burial, transferring the deceased from the morgue to the cemetery, providing supervision, and guidance during burials, and supervising matters of security in the cemetery.

##### ∅ Certificates of Veterinary Activities

The Abu Dhabi Municipality is responsible for issuing health certificate for licensing veterinary clinics and hospitals, pharmacy license, health certificate for pet trade license, trade cattle, and sheep, and health certificate for license slaughterhouse management.

##### ∅ Roads and Infrastructure

The Abu Dhabi municipality is responsible for providing letter of no objection for the establishment of a temporary ramp, demolishing a building, constructing a temporary fence, putting up the crane, and for installing awnings for cars.

##### ∅ Traffic Services

The Abu Dhabi Municipality is responsible for traffic light signals and programs, and traffic engineering studies.

##### ∅ Transportation and Loading

- The municipality is responsible for permitting transfer of waste drilling and the demolition of waste to designated areas, permitting download of materials from quarries.
- The municipality permits the extension of services, including permit for sidewalk upgrade, asphalt cutting, bank guarantee release for workload earthen quarry materials, spatial data, map requests, maps based planning, base maps, and maps satellite imagery.
- The municipality is responsible for data requests, including data based planning, data base maps, data aerial photos, coordinating points within the piece, and ground control points.
- Public services, including preview earth quarries, and delivery to all corners of the earth, replacement of documents, coordinating corners, participating in the system network stations cadastral (Surveying/Surveys and maps).
- The municipality is responsible for building permits, including licensing of new apartment building on vacant land, building new business license on free land, licensing industrial building new free land and new facilities on vacant land, permitting new development project establishment on free land, and license procedure for adding a building under construction. It also permits the establishment of an amendment to an existing building or an umbrella within boundaries of the coupon, an outer gate on the street, a makeshift tent within or outside the boundaries of the coupon, car garages outside the boundaries of the coupon, installation of tower crane, and retaining wall drilling, and installation. It also licenses an existing building, a fence to an added land, development of deep foundation, décor, comprehensive building maintenance, work and settles filling, and demolition of a building.

##### ∅ Architectural Credits

The municipality is responsible for adopting architectural plans for the construction of a new commercial, residential, industrial, facility, development, and structural system; amendment to existing building, building under construction; introducing in addition to the existing building, building under construction; and initial development project.

##### ∅ Structural Funds

The municipality is responsible for adopting structural plans for constructing new residential, build a new business, industry, facility, development; amendments to existing building,

building under construction; introducing additional building, building under construction, and ad banners.

#### Ø Inspection

The municipality is responsible for inspection of foundation, temporary fences, tiles, pickets, building completion, and technical report regarding building architect to the owner.

#### Ø Public Services

The municipality is responsible for temporary fence and building completion certificates, contractor and consulting firm registration or data modification, and adoption of change and consulting firm that oversees the construction project.

#### Ø Contractor Change

The municipality is responsible for license renewal, cancelling building permit request or building permit, submitting a project plan for study and accreditation, reporting of land status, adopting matching architectural plans for actual construction, extending work hours at construction site, documents or plans from archives, and gardens and parks. The municipality also permits service extension, green space removal, a sub-point line that connects rainwater drainage, pumping ground water, transmission line irrigation or rainwater,

#### Ø Violations and Fines

The municipality imposes fines on detriment of green spaces due to construction works. They also pay fines for damaging the green spaces due to road accidents.

### Other Activities

- Other activities of the municipality include review and audit, and approval of plans for new city designs, consulting firm standard specification, notice issuance to start work, requesting material civilian approval, and releasing security deposit for drainage work.
- Urban Planning: the municipality adopts land sites, allocates residential, commercial, industrial, farms land, as well as land for development projects, and break marine.

### Impact of Abu Dhabi Municipality on Abu Dhabi City

Abu Dhabi City and the associated urban environments are increasingly experiencing rapid growth illustrated by increasing trade, population, traffic movements, and vehicle ownership. This section will discuss the positive impact of Abu Dhabi Municipality on Abu Dhabi City.

### Environmental Safety and Awareness

Abu Dhabi Municipality is involved in "Our Parks" campaign to create awareness on recreational facilities and public parks. The main objective of the campaign is based on the municipality's commitment and social responsibility. The campaign

involves students from schools affiliated to Abu Dhabi Education Council, and park visitors. The campaign embodies the strategy and mission of Abu Dhabi Municipality that aim at enhancing environmental awareness, and parks and recreational facility appearance as well as advancing the attitudes and values that can conserve and protect the components of the park from various distortions. This campaign embeds the spirit of social responsibility among students so that they can protect the parks and recreational facilities' public properties, and informing them of the best utilization of the venues by refraining from making barbeques except in designated places. In addition, the ADM counsels the students on the necessity to maintain park cleanliness by ensuring that they drop trash in designated containers, communicating with visitors and students to acknowledge the services and facilities required in parks. They also diffuse environmental culture and conserving parks through establishment of workshops. The objective of ADM is to ensure a smart civilized appearance of Abu Dhabi City (Department of Municipal Affairs, 2013).

The campaign is undertaken within the framework of the objectives of the municipality to promote community outreach in preserving and protecting recreational facilities and parks with its community-based initiative targeted at leveraging sports, recreational, cultural, and environmental aspects across the segments of the community. It is a continuation of community services management plan involving community members with the municipality to protect utilities, recreational facilities, and installations, with focus on public parks. It also reinforces a culture of park frequenting due to their positive bearing on urban and modern appearance of the city to increase environmental awareness on the positive practices of maintaining park cleanliness with their natural elements and components, including trees and plants. It also focuses on educating park visitors on the best way to dispose of barbeque remnants and waste. These aspects include key components of the environmental education and awareness approach supported by the Municipality of Abu Dhabi City (Department of Municipal Affairs, 2013).

The Municipality has also organized various workshops that aim at teaching children the methods of growing plants and flowers, and impart proper environmental preservation practices among them. The campaign also entailed workshops on drawing and coloring and highlighted certain elements that disturb public gardens and parks. In addition, the Municipality has plans of activating educational and recreational programs, associating the principles of communal, familial, and individual responsibility to protect urban facilities, maintain gardens, and develop and utilize them as places of natural and attractive sites for other community-based programs. These objectives are the foundation upon which the Municipality of Abu Dhabi strategy is built, that is, to provide superior services based on community involvement (Department of Municipal Affairs, 2013).

### Coordinating Infrastructure and Construction Projects

The Abu Dhabi municipality has a huge role in physical infrastructure in Abu Dhabi City. However, this role is associated

with recurrent problems of time and cost, which overrun their development projects in the construction industry (Benson, 2006). The delays and cost overrun are also catastrophic to the nation and the industry, and may lead to unfavorable effects with regard to national economic growth, including holding back industrial development and causing financial losses (Halloum & Bajracharya, 2012; Odeh & Battaineh, 2002). At micro level, cost overruns and delays can result in arbitration, dispute, total abandonment, and litigation (Koushki, Al-Rashid & Kartam, 2005). In addition, it can lead to contract termination, stressful acceleration, and loss of productivity (Arditi & Pattanakitchamroon, 2006).

Abu Dhabi Municipality is responsible for infrastructure development in Abu Dhabi City. It plays a major role in the initiation of several projects that are vital for development and advancement of Abu Dhabi City. Some of these projects include electricity network, water supply and sewerage, highway construction, and communication cabling (Halloum & Bajracharya, 2012). However, Halloum and Bajracharya (2012) through their review demonstrate that improper assignment of roles and responsibilities or inadequate coordination among involved parties can have negative impacts on the targeted duration and cost of the project (EHSMS, 2009). Therefore, they suggest that authorities need to insist on clarifying the roles and distributing the responsibilities of all parties clearly in the initial project phases. In addition, there is need for authorities to promote proper sharing of knowledge among stakeholders and appropriate coordination among the parties involved. Consequently, such measures are likely to reduce the negative impacts associated with the projects. The ADM should focus not only on proper technical initiation but also on ensuring continuity of appropriate technical practices (Halloum & Bajracharya, 2012).

### **Creation and Renewal of Urban Structures**

Abu Dhabi Municipality also works in collaboration with other partners to create and renew urban structures, including the development of Abu

Dhabi central market. They have worked in conjunction with selected specialty consultants to tackle the unique environmental challenges and deliver construction drawings in accordance with the aggressive construction timetable to facilitate infrastructural development (Halvorson, Viise & Fenske, 2008).

### **Transportation Information Management System (TIMS) and Road Safety**

The Abu Dhabi Municipality roads directorate acknowledges the need to develop well-structured accident data gathering, management, and analysis for the Abu Dhabi City (Grosskopf et al., 2012). TIMS is a key component of accident management. The traffic police of the ADM is responsible for accident recording, accident location referencing, data/information exchange, data storage, analysis, and reporting. The accident information is useful and can be used for enforcement, engineering, and education. The ADM is responsible for accurate collection and management of accident data as a primary means of improving road safety in Abu Dhabi City (Khan, AlKathairi & Garib, 2011).

### **Demolition of Illegal Accommodation**

The Abu Dhabi Municipality plays an active role in the "clamp down on illegal bachelor accommodation" initiative. ADM is working in collaboration with the police to enforce residential laws, which restrict the number of people to three people per room and forbid makeshift partitions subdividing rooms. The initiative was in response to complaints from residents following extensive investigation by the municipality. Apart from involving inspectors in checking for unlicensed additions or partitions in villas, the initiative also educates the public on environmental and health risks associated with illegal subdivisions of housing (Al Subaihi, 2013).

ADM also demolished abandoned or unoccupied buildings, including commercial buildings, villas, and government offices that were undermining the beauty of Abu Dhabi City or presented safety hazards. Prior to the commencement of any demolitions, the municipality conducts inventories of disfigured

or abandoned buildings, commissions a consultant to prepare a condition report prior to alerting the owner of the building to demolish the structure or carry out maintenance works (National Staff, 2011). The initiative aimed at relocation of the bachelors to residential quarters fitted with all means of security, comfort, and suitable lodging provided with all facilities, including transit means, mosques, and shopping centres to serve the Abu Dhabi City residents (Al Subaihi, 2013).

### **Improving the Sustainability of Low Income Housing Projects**

The Abu Dhabi Municipality is increasingly focusing on improving the sustainability of low-income housing projects. They have focused on ensuring a construction process that is timely, cost effective, of high quality, durable, cheaper to maintain, user friendly, and with good indoor environment (DSSCB, 2000). They aim to achieve continued improvement and annual reduction in the time and cost of the project. Improving sustainability of low-income buildings can be achieved through assessment of the performance of the buildings to identify any faults or deficiencies and take measures that enable the municipality to enhance the performance of new projects in Abu Dhabi City.

The municipality is involved in assessing building performance in the City of Abu Dhabi. Assessing and measuring generally requires processes of checking reviewing, monitoring, and evaluating long-term and short-term the direction and progress of departments, organizations, projects, divisions, groups, functions, and individuals. This ongoing process aims at identifying the strengths, and weaknesses of projects and strategies for improvement. Consequently, corrective measures are adopted to overcome the weaknesses and improve performance (Bassioni et al., 2004). Assessing building performance has some benefits. In the short-term, it allows for better understanding of the performance and functionality of the building and comparing it against the stated criteria during the design. They may also enable the identification of problems before improvement efforts are implemented. In the mid-term, the

use of data collected in the assessment stage provides a source of knowledge for planning of new buildings that meet the city requirements. In the long-term, it helps in the establishment of databases, the generation of planning, design criteria for specific types of building, and enables the designers to consider and document their experience. This enables the Abu Dhabi Municipality to avoid making the same past mistakes as well as acknowledge past success (Abdul-Rahman et al., 2008). The accumulated information is vital for enhancing the quality of future buildings and services. In addition, assessment results may be used to improve design practice by enlightening the designers that there is a possibility of their buildings being subject to scrutiny thereby motivating them to maintain quality and the performance of low-income projects in Abu Dhabi City (Abdellatif & Othman, 2006).

### Agricultural Policies

The level of wastage of agricultural produce in the Abu Dhabi Municipality has reportedly been very high in the previous years. However, the Municipality has established agricultural policies with an aim of improving the sector's performance. Reports have shown that the sector has experienced very rapid developments resulting in increased output over the years. The agricultural policies set by the authorities have been shown to be effective in encouraging farmers to produce more through extensive and intensive farming. However, the marketing for vegetables and fruits remains poor in Abu Dhabi. The policy of the government on purchasing farmers' products stimulates increased production, but this has failed to match the level and form of marketing of the farm productions. The promotion of vegetable and fruit labeling, packaging, and presentation remains poor, the channels of distribution remain poorly managed, and the system of pricing does not have a bearing on agricultural activity cost structure or market competition. Marketing research to understand the market and the associated requirements and build a marketing information and database flow for marketing has not been undertaken.

In the early 1990s, about fifty percent of vegetables and fruits were reportedly spoiled, dumped, and left over as wastage. The major causes of wastage were found to be lack of effective presentation, marketing, and promotion of vegetables and fruits, poor system of distribution, lack of appropriate training on packaging, handling, and storage of vegetables and fruits, and lack of import control and export outlets, as well as uncontrolled government policies, instruments, and incentives. Based on these previous findings, recommendations have been put across so that the government can review its incentive policies, especially those related to training facilities, purchase arrangements, pricing, and support services (Tasha, 1994).

The Municipality has put in place measures and awareness programs among farmers to recycle farm waste annually by turning it into compost fertilizers to improve agriculture. There are also plans to open up more markets in residential areas to promote the sale and purchase of fresh fruits and vegetables within Abu Dhabi City. The Abu Dhabi Municipal-

ity has also put in place an initiative to increase the marketing of locally produced vegetables and fruits to increase the market share of local products in the city (Al Ali, 2013).

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