GIS Initiatives
for The Strategic Development of The
Emirate of Fujairah

Eng. Abdulla Al Khaddeim
Director of Project Management
Introduction

• Fujairah is one of the seven members of U.A.E.
• Population is 190,000 with growth rate of 6%.
• It has an area of about 1450 km².
• It is second largest bunkering port in the World (after Singapore).

Due to the oil pipeline between Abu Dhabi Emirates & Fujairah and due to many oil companies established their storage tanks in Fujairah, it may soon overtake Singapore.

• Wadies, Mountains, Beaches, Ancient Forts make it an attractive tourist destination.
• Since Fujairah Emirates is covered with mountains and deep wadies, limited land is available for urban / rural settlement.
Emirate of Fujairah
Emirate of Fujairah

- Fujairah Emirate is administered through two major Municipalities: Fujairah Municipality & Dibba Al Fujairah Municipality. There are about 36 Towns & Villages under Fujairah Municipality and Dibba Al Fujairah Municipality.
Fujairah Municipality

• Mission Statement
  ▪ Sound infrastructure and environment as per the international standards

• Initiative
  ▪ To become outstanding in Services
  ▪ Effective in Planning and Development
  ▪ Use of Technology to Assist Operations

• Services
  ▪ Planning
  ▪ Commercial Licensing
  ▪ Public Health
  ▪ Environmental Control
  ▪ Public Relations
  ▪ Research and Building Material Testing
Brief History

- Fujairah Emirate started implementing GIS since 1995 by making Orthophoto maps for entire Emirate at a scale of 1:5000 & CI = 5 m. In subsequent years line mapping was made for Fujairah Town, Dibba Town, Mirba and Qidfa at a scale of 1:1000 & CI = ½ m.

- In 1996, there were continuous rains for 3 to 4 days with the result that numbers of villages were flooded. One such village which was severely affected was Qurayya about 7 km from Fujairah Town. It was decided to resettle the village at a new location. Orthophoto maps of 1:5000 & CI = 5 m with software like AutoCAD, Arc View, CAD Overlay GSX were used to plan a new township for 200 houses with hospital, schools, shops, channels for water flow from surrounding mountains etc within 2 days. Qurayya is now a thriving village. So far GIS technology has been used for planning new towns, shops, roads etc.

- Now Fujairah Emirate has decided to create Geo-database with land records as the basis.
Land Allotment

- In Fujairah Emirates, Towns / villages (depending on their size) are divided into sectors and each sector is divided into blocks.
Assuming that the land is allocated to a person, a site plan is issued by the Lands Department having validity of six months to one year.
Milkiya

• After the construction has been made in the allocated parcel, another site plan is issued by the Lands Department. In this Milkiya no. (Title Deed no) is mentioned. With this the person has confirmed ownership of the land with construction on it.
The two site plans mentioned forms the basis for creating GeoSpatial Data.

Since existing maps available were old it was decided to prepare new maps in 2011 - 2012 at an scale of 1:1000 and CI = 0.5 m for about 120 Sq Km covering Fujairah Town, Qurayya, Mirba, Qidfa, Al Hayl Industrial Area & Gisemmeri. These maps have been converted in to Shape file format. Utility layers for Etisalat, Electricity, Water, Sewerage pipeline and Gas pipeline has been created depending upon the information available with municipality and on site.

In 2013 mapping of Dibba Al Fujairah Town and all the villages under Fujairah Emirates covering an area of 230 Km² has been completed.

Also sections like Planning, Building, Survey, Lands, License and Sewerage are keeping their records pertaining to land. Creating a centralized Geo – Data Base will help to compile all the information available from these sections at one place.
Future Plans

• There are about 25,000+ files with land section of Fujairah and Dibba Municipalities which have to be brought under Geo-Database.
GeoDatabase

- Geo database was designed so that parcel and owner information available with Fujairah Municipality is linked with map.

- Features are:
  A. Search Module based on:
     - Name of owner
     - Name of block
     - Name of sector
     - Plot Number
     - National ID Number
  B. View result as map & report
  C. Language support English & Arabic.
Land Allotment

Fill data and search
Then print out
Measurements are coming automatically
We have save this site plan as jpegs also
Detailed information
Municipality Data

- **Data Components**
  - Orthophoto (15 cm Resolution)
  - Satellite Imagery (1m Resolution)
  - Landbase data (Building, roads etc)
  - Planning Data
  - Approved Site Plans
  - Approved Milkiya
  - Owner Information
  - 3D Geo-referenced Data Base

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GIS Database

Imagery, CAD / Shape Files

Automation Tools

GIS Database
1. Oracle
2. Arc

Local Network

User 1

User 2

User 3
Data Migration

Raw Data

Automation Tools

Migrated to GeoDatabase

Final Site Plan / Milkiya

Create New / Search / Browse Owner History

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Data Center

• Fujairah Data Center Creation in Progress

• Central GeoDatabase
  ▪ All Data in one place
  ▪ Web Based Edit Cycle
  ▪ Automation tools - Check-in and check-out CAD data
  ▪ Site Plan and Milkiya Automation
  ▪ Owner Information Linked
  ▪ 3D Geo-database linked

• Web Application – GeoServ
  ▪ Authentication & Authorization
  ▪ User & User Group Management
  ▪ Virtual Map Services
  ▪ Profile based privileges
  ▪ Map Layers Management
**Spatial Data Infrastructure**

- **Fujairah Data Center**
  - Management
    - Central Data Server for:
      - Fujairah Municipality
      - Dibba Municipality
      - Fujairah Statistics Center
    - Central Data Management
    - Permission Based Access
    - Generate Reports, Statistics, Maps
  - Benefits
    - Allow all agencies to access data
    - Track / Monitor Changes in Data
    - Expand to accommodate Public Users
    - Cater to Future Growth in the Emirate

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Vision

Data Sharing

- Dibba Municipality
- Statistics Center
- Other Government

Public Access

- Map Access

Fujairah Municipality

- Survey / Planning
- Statistics Data
- Verification / Control

Spatial Data Infrastructure

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Once the database is completed in 2014, the Emirates will go for the address system. Presently there are two approaches to this system: **ONWANI** by Abu Dhabi Municipality & **Makani** by Dubai Municipality. It will be a good idea to have one system for the whole of U.A.E.
• Fujairah Municipality decided to launch its Fujairah3D initiative in 2009

• Objectives
  1. To support the development of the Emirate with decision-making tools for the leaders of Fujairah
  2. To create 3D virtual interactive applications on different topics for decision-makers, citizen, investors, tourists.
  3. To build capacities of the 3D team of the municipality & educate the stakeholders on the initiative

• Benefits
  ❖ Mutualization: one 3D virtual model (3D GIS database) for all uses
  ❖ Sustainability: building capacities & education
  ❖ Large diffusion: advanced technologies to target various publics locally and internationally
Gitex, October 2012

First Forum UAE planning diversity and integration, November 2011

4th Gulf Tourism and Investment Forum, November 2012

National Day in City Center, December 2012
Smart Fujairah
Thank You

Fujairah Municipality
http://www.fujmun.gov.ae/