

# **ASSESSMENT OF GIS STATUS QUO AND A BLUE PRINT FOR AN ACTION PLAN TOWARDS GIS AT DAMMAM MUNICIPALITY**

by

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## **OBJECTIVES OF STUDY**

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- **Evaluate overall GIS current status quo at the Municipality**
  - **Evaluate Doha District Pilot GIS project and its current state of affairs**
  - **Provide recommendations & an action plan concerning GIS future at the Municipality**
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## **MUNICIPALITY-WIDE GIS**

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- **A 5-year/5-phase plan (1990 to 1995) was developed for Municipality-wide GIS**
- **Includes initial establishment of a municipality-wide GIS project through a prototype pilot project**
- **Doha district was chosen to apply the prototype project.**

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## **PROTOTYPE GIS PILOT AREA: DOHA DISTRICT**

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- **Total area around 25 square KM**
- **Includes 4200 parcels that make up its 11 subdivision plans.**
- **Dominant land use is residential**

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## **DOHA DISTRICT PILOT GIS PROJECT**

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- **Pilot Project contracted to a local consultant.**
- **Contract Duration: one year starting April 1995**
- **Budget around SR 6,000,000.**

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## **PILOTE PROJECT OBJECTIVES**

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- 1) Construct high quality GIS database of all features within the study area.**
- 2) Develop a minimum of five GIS applications**
- 3) Set up a system of HW/SW that is expandable municipality-wide on a later stage.**

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4) Evaluate sources of GIS database, its conceptual design, & functionality

5) Provide technical & managerial training to staff

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## Pilot Project's Database Conceptual Design

- Data collected were categorized into several layers making up the database of the pilot project:
  - 1) Topography
  - 2) Regional subdivisions
  - 3) Ownership and Real Estate

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- 4) Landuse
  - 5) Soil types
  - 6) Sewer Network
  - 7) Flood
  - 8) Electric Network
  - 9) Phone network
  - 10) Survey Control Points

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## PILOT PROJECT'S DATA SOURCES

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- **Data collected for the project were based mainly on MOMRA's 107 Aerial Photography Project carried out in 1983.**
- **Other sources were:**
  - 1) Land Subdivision plans at the Municipality,
  - 2) Saudi Telecommunications Company (STC), &
  - 3) SCECO.

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## PILOT PROJECT'S DATA CONVERSION

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- **Data conversion of maps was sub-contracted by the consultant to a local company**
- **Maps converted were:**
  - 160 maps (scale 1:1000),
  - 20 maps (scale 1:2000),
  - 3 maps (scale 1:10000), beside aerial photos of the pilot project area.

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## PILOT PROJECT'S HW/SW

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- **Intergraph MGE program was applied as the main GIS software of the pilot project**
- **Oracle package utilized for attribute database management**

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# PILOT PROJECT'S APPLICATIONS DEVELOPMENT

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- Four GIS applications developed during the pilot project.
- Arabic attributes about land parcels have been linked to their graphical representation.

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# PILOT PROJECT'S CURRENT STATE OF AFFAIR

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- After the conclusion of the project in 1996, most of the technical staff have leaked away
- Thus, the pilot project with all of its remaining phases were totally abandoned.

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- **By 1997, products of the pilot study were forwarded to Municipality's Urban Planning Directorate (UPD) including:**
    - Digital data of the pilot project &
    - A set of documents and reports produced by the consultant

## **EVALUATION OF THE MUNICIPALITY'S APPROACH TOWARDS GIS**

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- **Main factors that led to this state:**
  - Lack of awareness of GIS benefits among prospective users
  - Over looking Comprehensive User Requirements Assessment (URA)



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- No clear future plans,
  - No proper GIS implementation and management plan
  - Clearly understaffed
  - Inadequate staff Training
  - Problems with GIS expertise transfer/ retention

## RECOMMENDATIONS & A BLUE PRINT FOR AN ACTION PLAN

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- Due to centralized organizational structure of municipal sector, a comprehensive top-down approach is highly recommended.
- A high-ranking GIS Steering Committee, representing all departments of Dammam Municipality, should be formed.

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- **This committee should report directly to the Director of the Municipality.**
  - **Its charges are to carry out the following *Organizational and Technical* tasks**

## **ORGANIZATIONAL TASKS**

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- Establish a GIS Unit that reports directly to the GIS Steering Committee and Mayor Office
- Study the organizational structure of the municipality and observe how information flow within the municipality
- Develop a long-term strategy towards GIS
- Establish a framework to carry out a comprehensive URA

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- Form and/or revive a higher committee involving other potential benefiting agencies: such as SCECO, STC, and Directorate of Water and Septic Network
  - Secure funds and support from high ranking officials
  - Invest in prospective users through training

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## **TECHNICAL TASKS**

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- Identify the basic elements of the base map and its boundaries
- Build the base map and identify the potential layers (themes) of the GIS data base
- Establish the means to collect input data
- Device procedures to update the GIS database

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## **DELIVERABLE SERVICES FROM KFUPM CONCERNING GIS**

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- 1. Provide part-time consultancy for GIS and GIS-related projects at Dammam Municipality,**
  - 2. Offer tailored GIS short courses that meet the needs of Dammam Municipality**
  - 3. Offer training courses on GIS and other relevant topics and any other matters**
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**Thanks for Listening**

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