1 - Introduction

**Cadastre**
- Economic development
- Land planning, consolidation
- Land reforms, expropriation
- Digital cadastral map (properties, land & resources)

**Municipality**
- Volume data organisms
- - Consultation & analysis
- - Paper supports
- - Conventional maps
- - Management
- - Decision making?

**Data expansion**
- Analysis
- Processing

How to integrate digital cadastral map & urban data for municipality needs
- Develop process to treat cadastral data
- Process municipality & other kind of data
- Develop methodology to combine cadastral data & urban data into a DB
- Conceive GIS prototype dedicated to interactive management of municipality daily needs.
- Contribute to development of municipality: Tools for spatial analysis & decision making
3- Data Preparation

Processing cadastral data

Select parcels within urban perimeter of city

Check redundant parcels

No

Check redundant BM

Yes

Update BM

Table BM

Delete BM

Table BM

Complete attributes of Parcels & BM

Integration into future GIS DB

Final Tables

Completement: by Access DB other data

4- Data processing

Processing of the UDM

Rectification - Vectorisation of the Urban Development Map

Data restructuration & exportation

Table of graphic entities Urbanistic rules

Resultant layer

Rules of the UDM

UDM table

Data treatment using Autocad map

Linear data

3

Point D Equipment

4

Polyg D Sectors

Type of network

2

Linear Data Branching

Polygon data

1

Data treatment using Autocad map

3- Data Preparation

Municipality Urban data

UDM (dwg)

City map (old & new) (dwg)

Drinking Water pipelines (Dxf)

Purification Netw (dwg)

Other data

Administrative limits (MapInfo)

State properties

Hydrographic Netw Data

4- Data Processing

5- Main functionalities GIS Prototype

Map

Theme

Themes & Analysis

Analysis

GIS DB

Update

Create MapInfo tables

Database of the GIS application

Groupement data same theme into one table

Establish programs (Map Basic)

Rectification - Vectorisation of the Urban Development Map

Data restructuration & exportation

Table of graphic entities Urbanistic rules

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Rules of the UDM

UDM table
5- Main functionalities GIS Prototype

- Consultation and visualization of data:
  - Reach the database (both graphical and alphanumerical) in a fast and efficient manner.
- Update data:
  - A set of tools the user to update the database in order to guarantee a continuous and lasting exploitation of the application.
- Database query:
  - Several operations of analysis, query and consultation of the database.
  - Formulate thematic analysis or spatial analysis based on one or several criteria.
- Thematic Maps
  - Edit different kind thematic maps criterions (nature property, status, type of registration..)
- Presentation of results:
  - The user can generate the information and the results in the form of tables, thematic maps with their proper annotations, layouts, and legend.

6- Case Study

Sample data from the municipality of Sidi Kacem
- Located in the South-East extremity of the plain of the Gharb
- About 70 Km north of city Rabat.
- Area is about 683 ha.
- The center of the city has a mainly industrial vocation.

6- Case Study

- Results of statistics on DW pipelines

6- Case Study

- Statistics on cadastral data
  - Idea on the advance of land registration process and the zones that have a great demand of registration

6- Case Study

- Searching all parcels encroached by a drinking water pipeline (1 m).
6- Case Study

- Multi-criterion searches: properties responding to several criterions (area, titled, status, nb levels)

6- Case Study

- Overlaying the drinking water pipelines network and the UDM

6- Case Study

- Result of overlaying the purification Net (blue) & the UDM

6- Case Study

- Overlaying the cadastral map & city map

7- Conclusions

- Methodology to integrate cadastral data with municipality

7- Conclusions

- What are the impacts on the development of the municipality?
  - Assist the realization of projects consisting of spatial data,
  - Contribute to the socioeconomic development of a municipality through facilitating decision making,
  - Facilitate the process of analyzing and extracting spatial data,
  - Develop a consistent spatial reference frame, containing data on land management, and urban networks as well.
THANK YOU FOR YOUR ATTENTION