

بسم الله الرحمن الرحيم

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INSTITUT AGRONOMIQUE  
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معهد الحسن الثاني للزراعة و البيطرة  
مسلك الطوبوغرافيا

PROCESS OF INTEGRATING DIGITAL  
CADASTRAL MAP AND URBAN DATA INTO A  
GIS APPLICATION FOR THE  
DEVELOPMENT OF A MUNICIPALITY  
CASE STUDY

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## OUTLINE of PRESENTATION

1. INTRODUCTION
2. MAIN GOALS
3. DATA PREPARATION
4. DATA PROCESSING
5. GIS PROTOTYPE DEVELOPEMENT
6. CASE STUDY
7. CONCLUSIONS

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## 1- Introduction

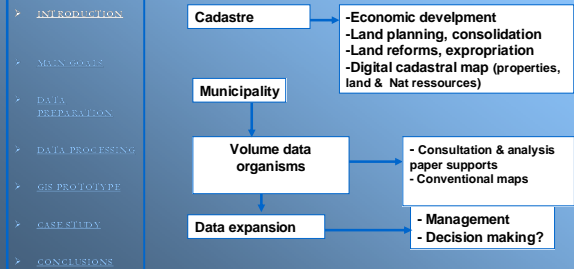


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## 1- Introduction

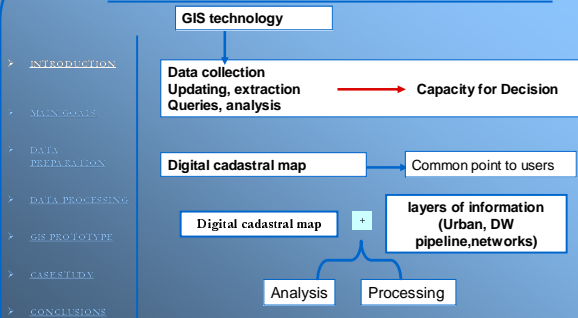


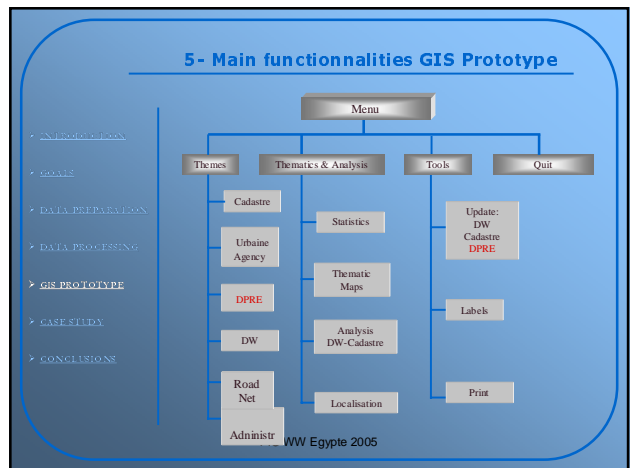
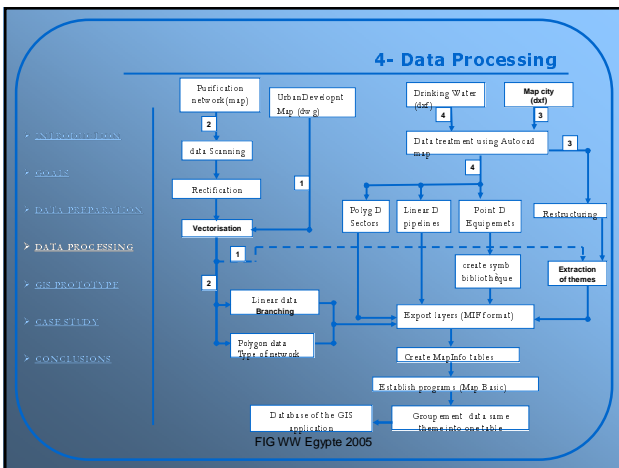
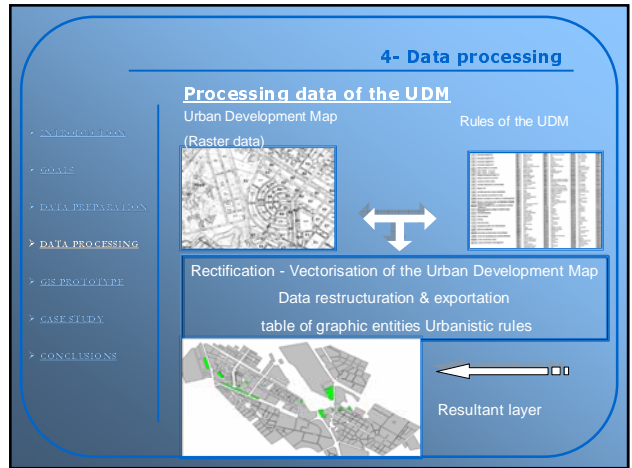
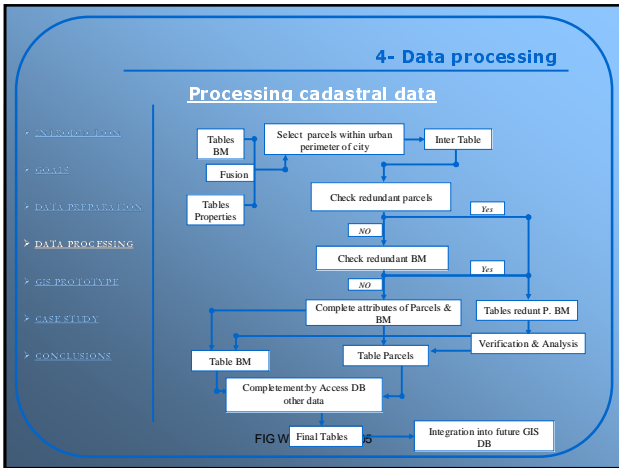
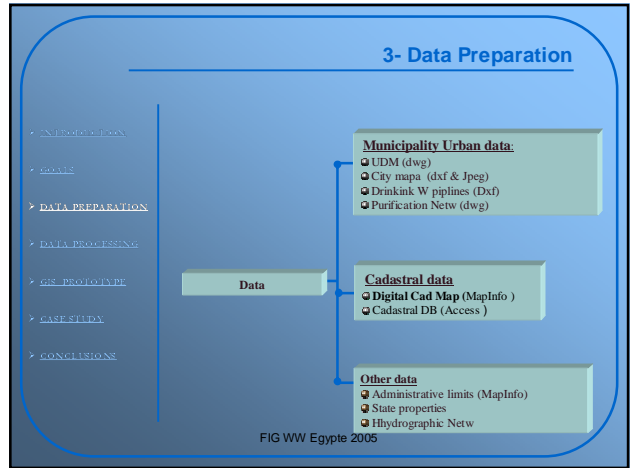
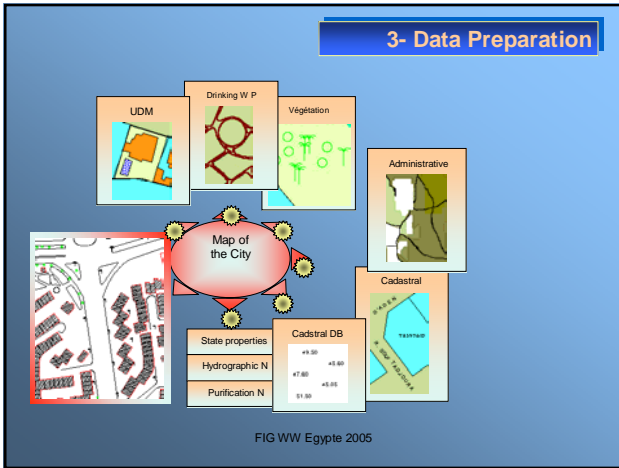
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## 2- Main Goals

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 developement of municipality: Tools for spatial analysis & decision making

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### 5- Main fonctionnalités GIS Prototype

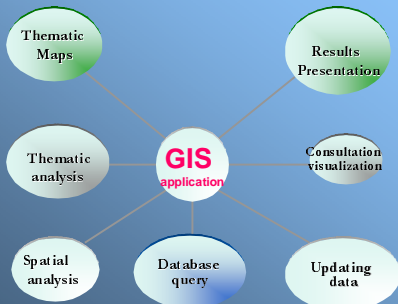


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### 5- Main fonctionnalités GIS Prototype

- 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.

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### 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.

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### 6- Case Study

- statistics on cadastre data
- idea on the advance of land registration process and the zones that have a great demand of registration

Cadastré : Statistiques					
Nombre total des propriétés : 0017					
Nature :					
Titre	Réquisition				
58-90	3	194			
Statut :					
Mats	DFPE	Habous	Daïche	Collective	Non précises
58-90	3	39	0	0	85
Répartition par maps :					
74	34-26	34-27	35-27		
	0/43	0			
Consistance :					
T.N	R.de Ch.	R + 1	R + 2	R + 3	Autre Non précises
0	0	0	0	0	0017

### 6- Case Study

- results of statistics on DW pipelines

Statistiques			
Conduites		Equipements	
Type	Catégorie	Nombre des conduites	Longueur Totale (m)
DN 50	P.V.C	98	7265
DN 60	Amiante ciment	1356	59706
DN 63	P.V.C	123	9726
DN 75	P.V.C	20	1471
DN 80	Amiante ciment	335	28599
DN 90	P.V.C	5	805
DN 100	Amiante ciment	168	20748
DN 110	P.V.C	7	1996
DN 150	Amiante ciment	141	20484

La Longueur totale du réseau est : 184982 (m)

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### 6- Case Study

- searching all parcels encroached by a drinking water pipeline (1 m).

Type	Parcelle	Contenance (Statut)	Contenance Adossée	Longueur de l'empiètement	Empiètement
11457030	MELA	206.420	15.000	15.000	
11457030	MELA	151.780	10.9823	10.9823	
11457030	MELA	151.777	11.0464	11.0464	
11458030	MELA	206.830	18.9302	18.9302	
11458030	MELA	206.433	14.8000	14.8000	

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### 6- Case Study

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

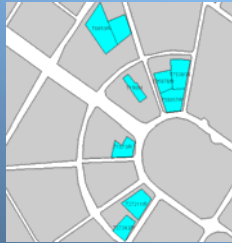


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### 6- Case Study

- Overlaying the drinking water pipelines network and the UDM

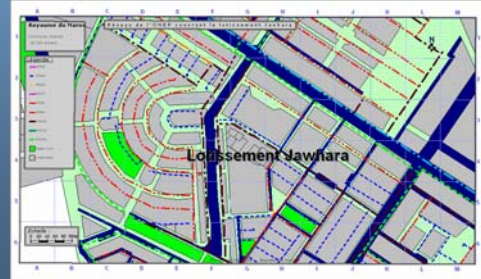


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### 6- Case Study

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



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### 6- Case Study

- Overlaying the cadastral map & city map



### 7- Conclusions

- INTRODUCTION
- GOALS
- DATA PREPARATION
- DATA PROCESSING
- GIS PROTOTYPE
- CASE STUDY
- CONCLUSIONS

- Methodology to integrate cadastral data with municipality
- Database to develop a GIS tool using Map Basic, Visual Basic, and MapInfo 6.
- This tool will permit:
  - Interactive management of the geographic data handled by a municipality.
  - Overlay the digital cadastral maps onto the urban development map, and extract useful information.
  - Data analysis, processing, updating, and searching.
  - Respond to some specific queries concerning local geographical information and establish some thematic maps and statistics.

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### 7- Conclusions

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#### 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.

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**THANK YOU FOR YOUR ATTENTION**

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