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Country Report of Egypt *

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High Level Forum on Global Geospatial Information Management

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**Egypt Report
On
The Development and Innovations of Egypt National geospatial
Information System**

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About The Department

The Geographical Information Systems Department was established in 1989, to do the following tasks:

1. Establishment the administrative boundaries of Egypt for all three levels(Governorate-Ksm\Mrkz-shiakha\village).
2. Creating the digital base maps on the level of provinces Republic on a scale of 1:5000 (The coverage of digital base maps for urban areas of the republic is nearly 100%).
3. Produce different types of maps which are used in surveys, censuses and researches which are produced by CAPMAS.
4. Offering the consultations and technical support to government and private sector to build geographic information systems units from A to Z.
5. Supplying the needs of universities and research sectors by providing digital maps, cartography maps and various geographic data.
6. Continuously follow up updating of all geographical data bases for base maps and administrative boundaries at all scales of maps.
7. Establishing the GIS projects and applications for public and private sector.

After using GIS in Census 2006 , the department's tasks were developed and expanded. Where the integration of statistical data with spatial data added the influential role in the planning and development, policy formulation and decision-making in all areas of development.

Projects and Applications

The department produces innovative applications using geospatial technology. These applications have main role for support decision makers and researchers in various activities, especially social and economic activities.

The implementation technology used:

- ARC GIS 9.3
- ARC ENGINE 9.3
- ARC SDE 9.3
- ARC SERVER 9.3
- ORACLE 10g
- [VISUAL.NET](#)
- [ASP.NET](#)

The projects completed:

The most impotence of these applications or projects is:

- **Using GIS in the general census 2006 of population, housing and establishments Project.**

IN census 2006, we used the latest techniques of information technology for data warehouse to link the census data (population, buildings and facilities) with digital maps. And also used the latest techniques of Geographic Information Systems represented in the software packages Arc GIS and Oracle database.

The methodology of work:

1. Census Preparation Stage

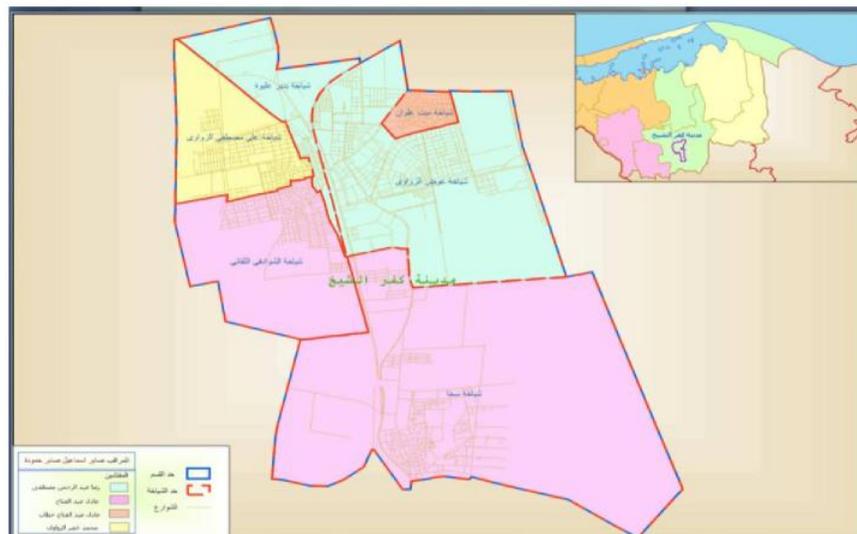
It clarifies the role of GIS in planning and preparation for the census

- a. Processing the updated maps of the administrative boundaries of the governorates - kism / markaz - shiakha / village
- b. Divided the work areas to achieve the clear separation between the borders of neighboring areas and to ensure full coverage of all work areas of Egypt.
- c. The work areas were divided as: Regions for the general observer, the observer, the inspector and the researcher.
- d. Numbering roads and blocks on the level of Egypt to facilitate the counting process and provide accuracy in obtaining the necessary statistical data and to avoid ignoring any building.

Fig(1): Distribution of work areas for the general observer and the observer in Kafr-elsheikh governorate

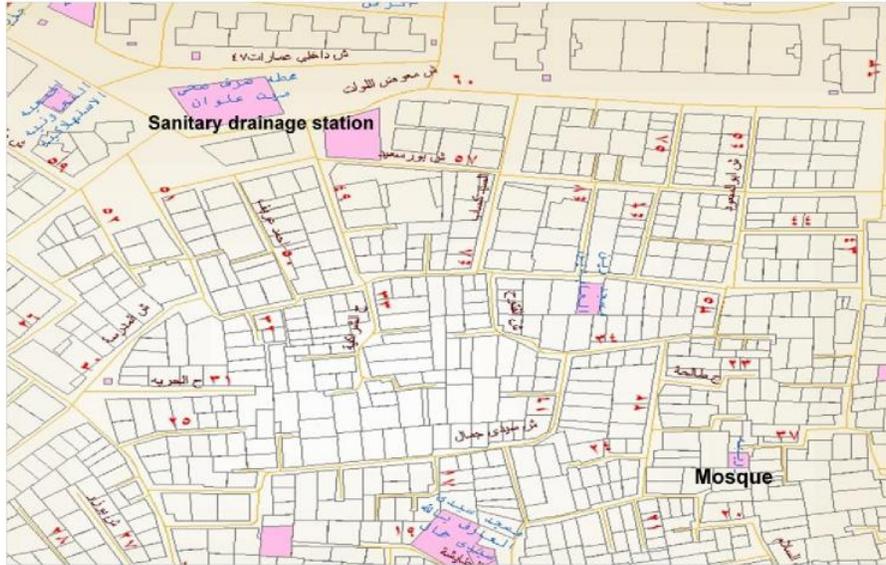


Fig(2): Distribution of work areas for the inspector in Kafr-elsheikh city, Kafr-elsheikh governorate



2. Field implementation Stage

Fig(3):The inspector work area after field implementation in Kafr-elsheikh governorate.



This Fig. shows : numbered roads

3. Creating census geographic database

Fig(4) shows The screen for entering the buildings census figures, using the detailed digital map with scale(1:500) in Manshiet Naser Shiakha.

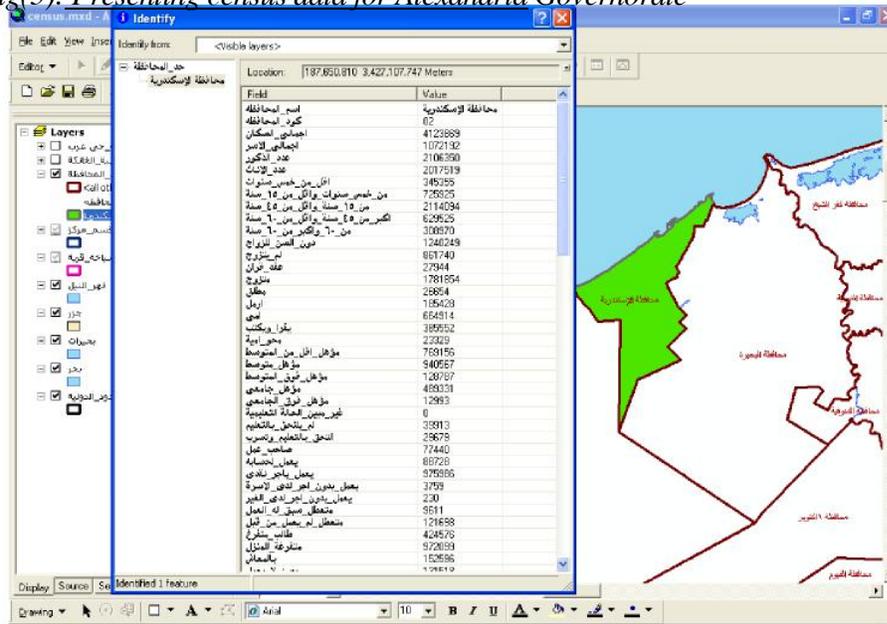


4. Release of census results on maps and data dissemination,

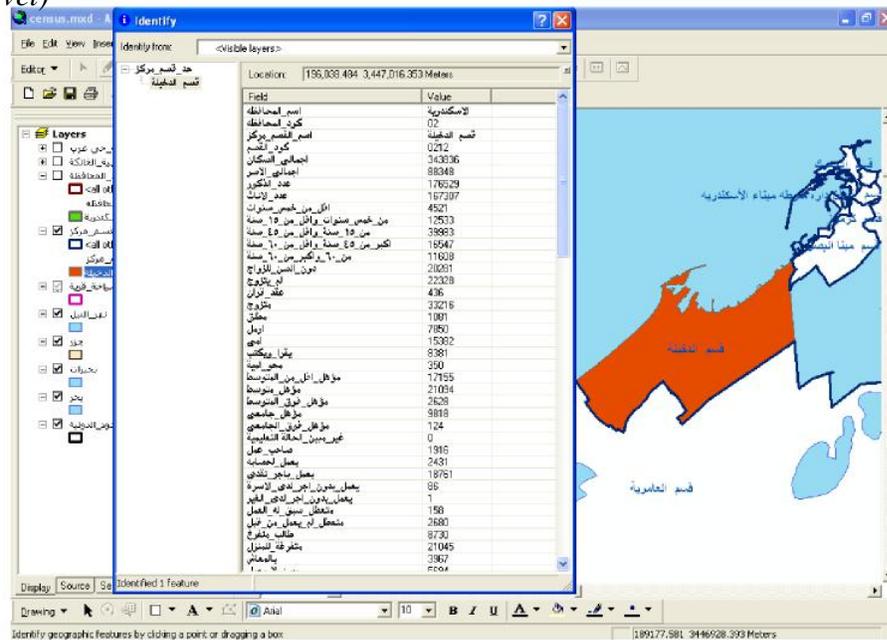
which consists of:

- linkage the geographic database with statistical database.
- the release of: Egypt Population Atlas
- data dissemination on CAPMAS web site

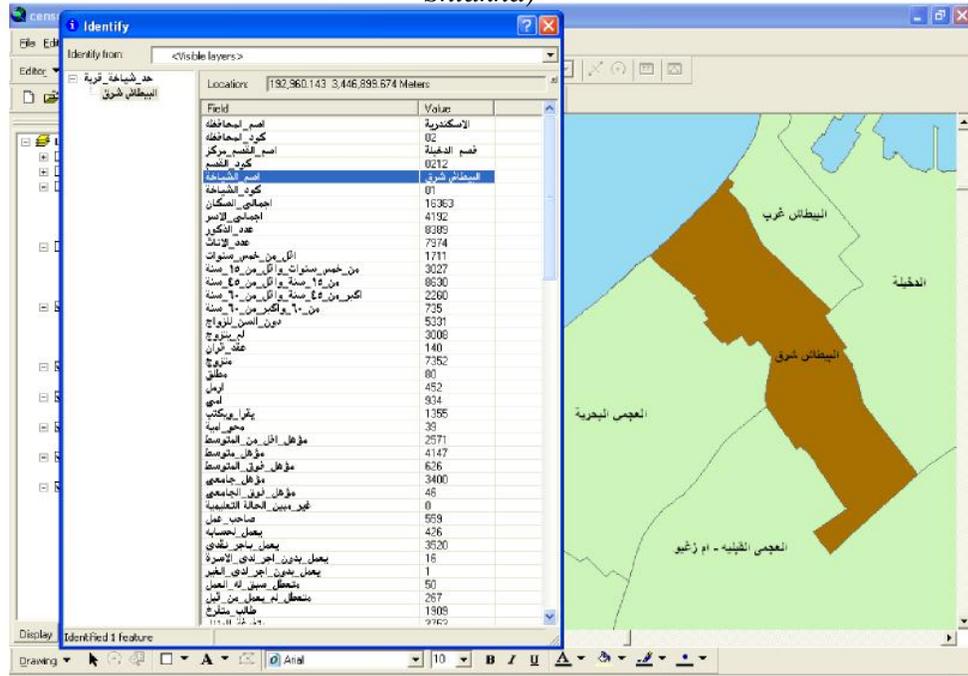
Fig(5): Presenting census data for Alexandria Governorate



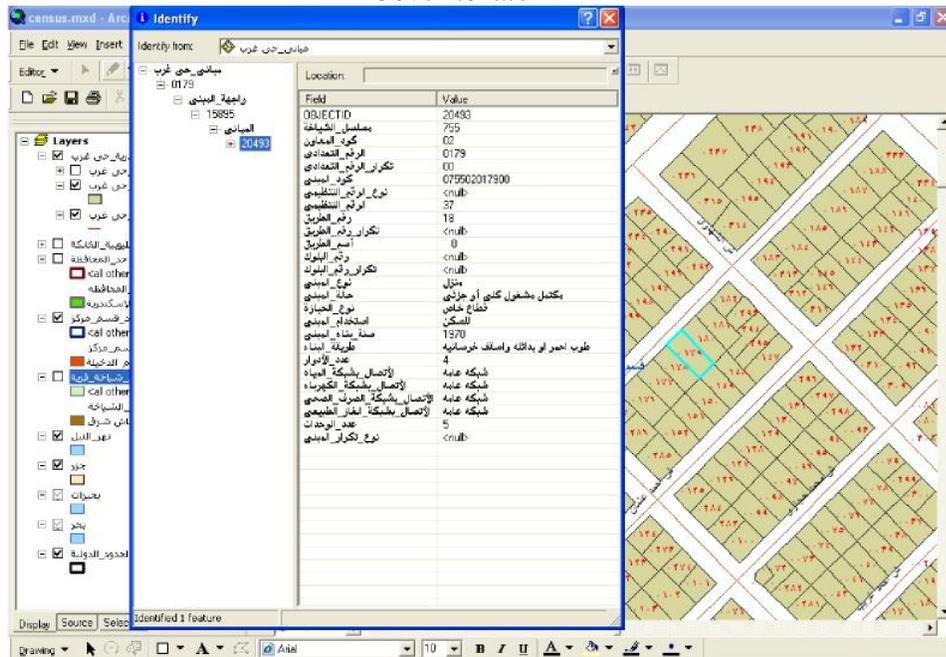
Fig(6): Presenting census data for Alexandria Governorate (Kism / Markaz level)



Fig(7): Presenting census data for Alexandria Governorate (for the level of Shiakha)



Fig(8): Presenting detailed census data for the level of building in Alexandria Governorate



This fig. shows the Features of the building in terms of the building's type, the building's status, the building's use, the year of establishment, the building construction method, the number of floors, the connection of public utilities networks, the number of units in building.

Project of Egypt's Atlas and the population.

Statistical Atlas is considered the most important modern methods of showing the final results of 2006 census in the form of maps, in addition to the statistical analysis of these data with the use of graphs.

Fig (9): presenting the population density for the inhabited area and population distribution according to the governorates

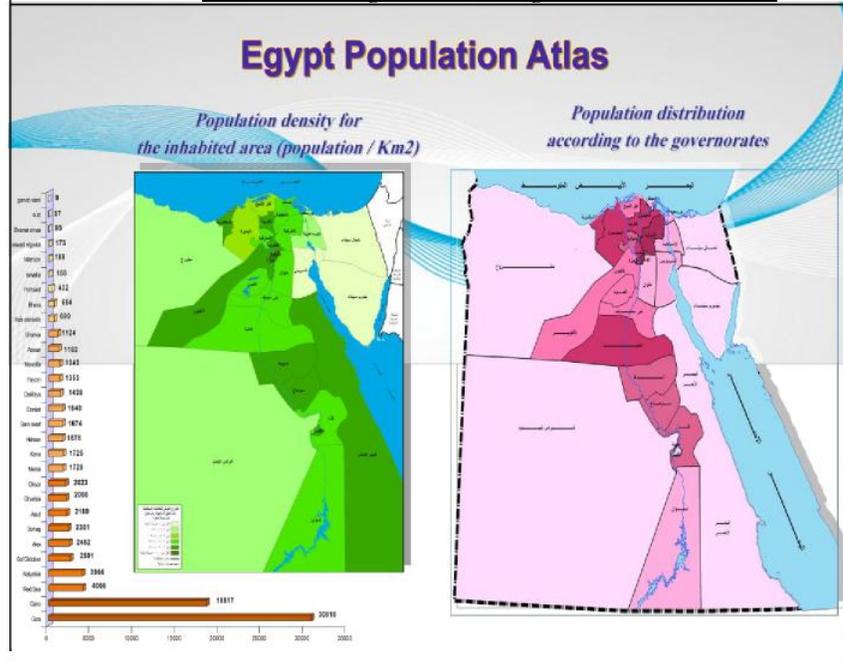


Fig (10): presenting the population distribution according to Age groups area and population distribution according to (60 years and over) Age group at governorate level.

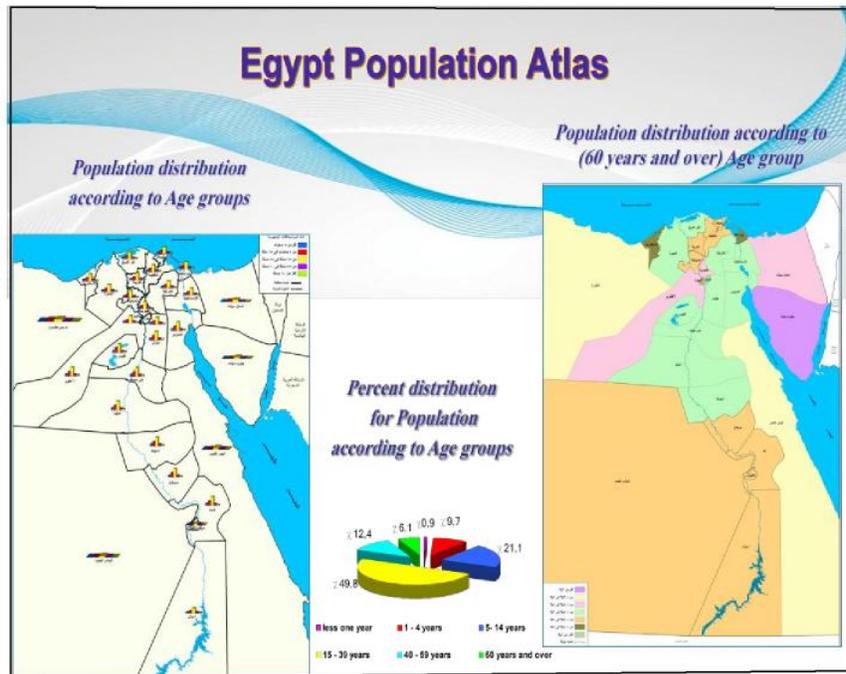
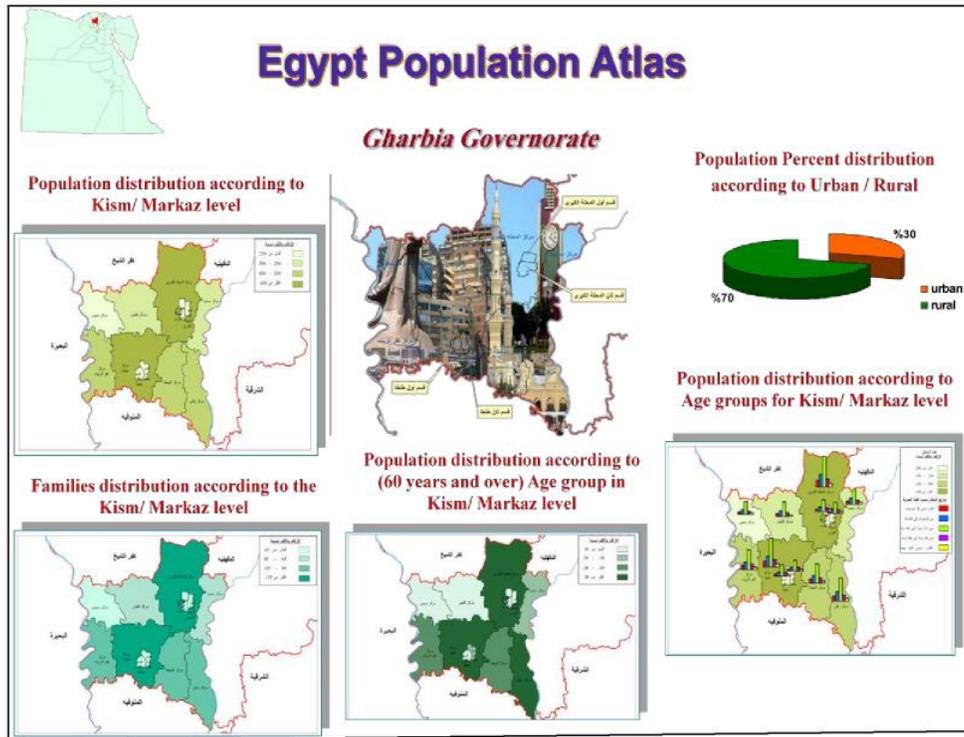


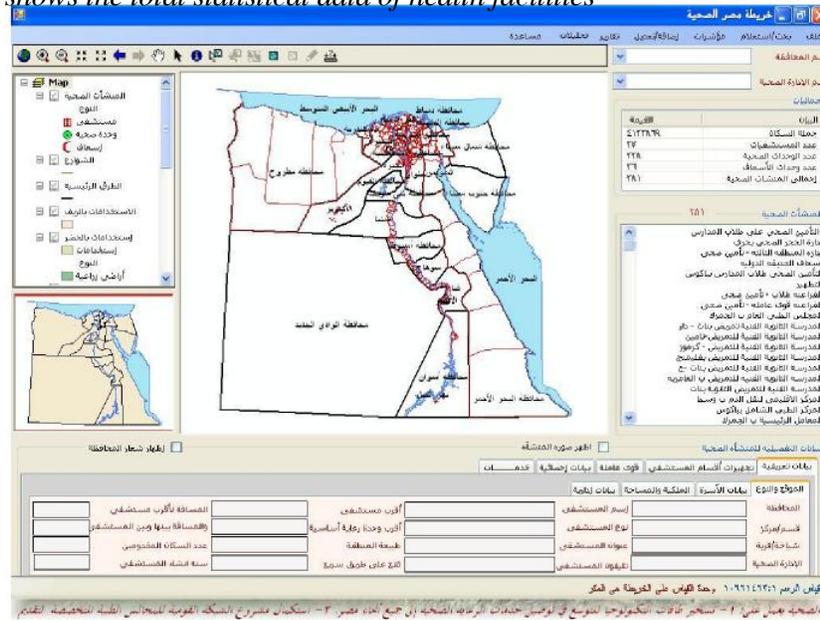
Fig (11): presenting many population properties for Gharbia Governorate at Kism/Markaz level



National Project of Egypt's Health Map.

In cooperation with the Ministry of Health, the department has established a geographic information system of health map of Egypt contains the health facilities of the health ministry located on detailed digital map of Egypt. The health map is linked to the population census databases as well as the descriptive data for the health facilities (the sets and equipments - the employment - ...)

Fig(12): present the main screen, contains the layers that make up the digital map. It shows the total statistical data of health facilities



Fig(13): The location of Specialist health insurance Hospital in Alexandria governorate and all statistical detailed database about the hospital



Fig(14): Present the possibility to display the hospital image, the sections' equipments-and outpatient clinics in the hospital

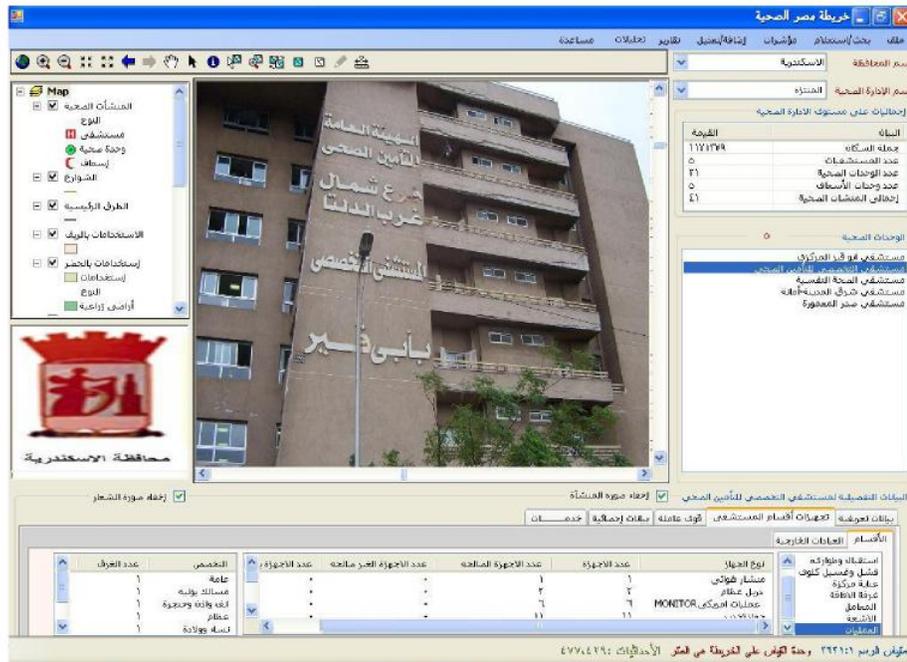
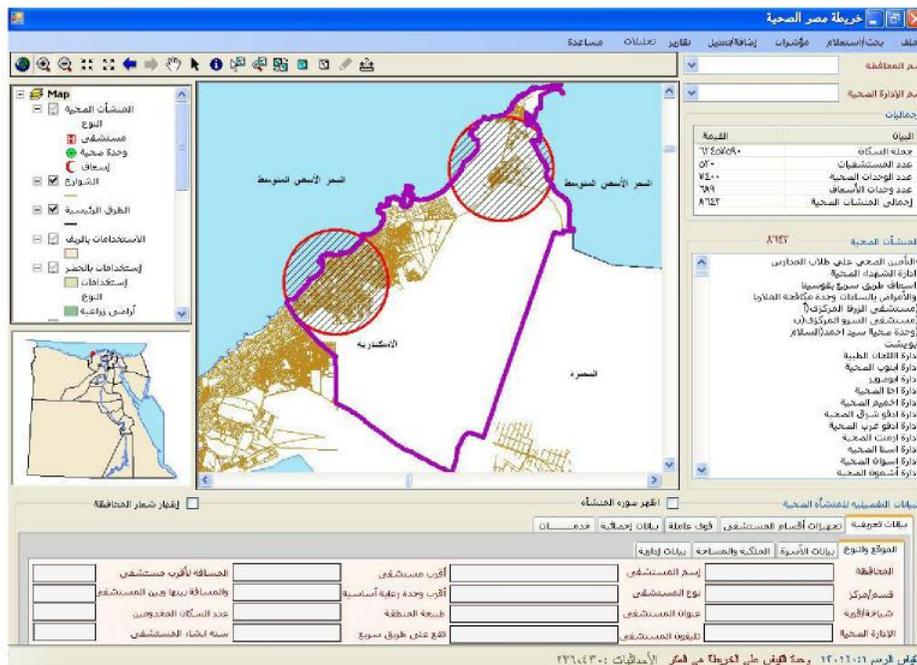


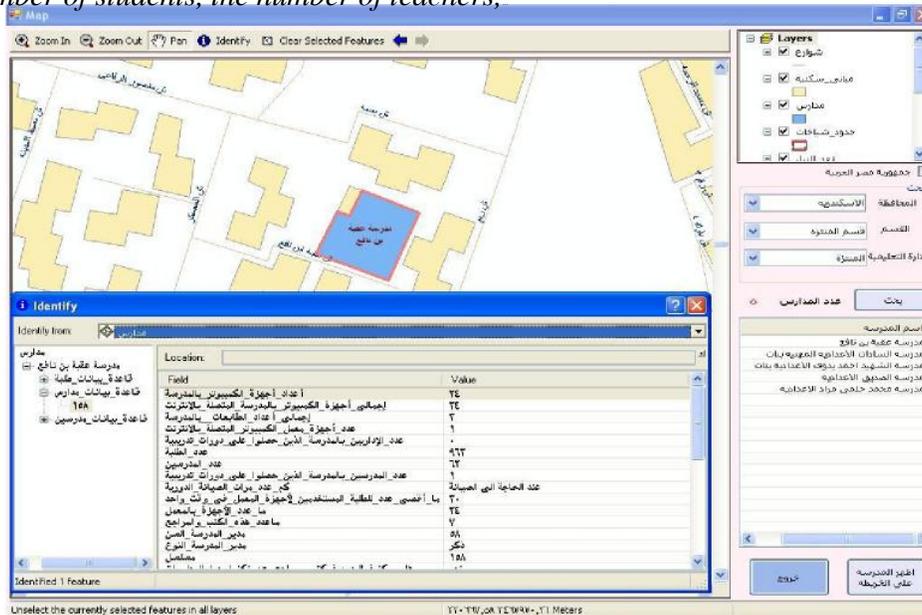
Fig (15): Presenting the health facilities within the scope of service that is located on the map and present a list of the health facilities



Egyptian Education Initiative Project.

In cooperation with the Ministry of Communications and information, the geographical information system has been established to measure the impact of the use of computer technology (ICT) in education. This project has been applied on 2000 schools.

Fig(16): Presenting the location of Aqba Ben Nafe School in Alexandria Governorate and all statistical data about school as : the number of computer sets, the number of printers, the number of labs of computer connected with internet, the number of students, the number of teachers,



The current Projects:

The National Map Project of Development unsafe areas (slums).

In cooperation with the Information and Decision Support Center in the Egyptian Cabinet, The department is currently implementing geographical information system of unsafe areas.

The objective of project:

To help the decision makers to put a plan with time frame for urban planning and giving priority to areas of dangerous and unsafe as following:

- Removal of hazardous areas and to compensate the population
- Put the plan for re- planned residential and supplying them with basic utilities ; of water and Sewage and electricity.
- In addition to the development of civilization and provide jobs for residents.

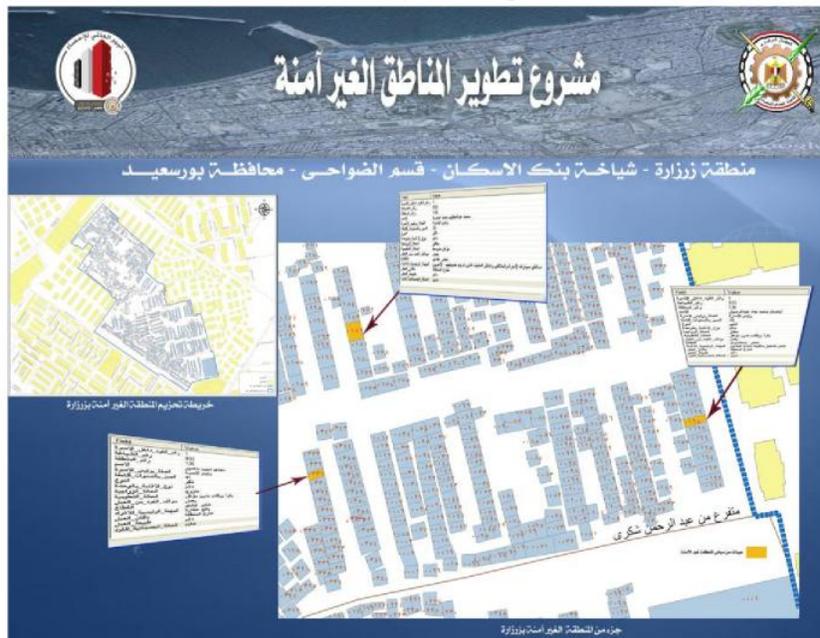
The unsafe areas are classified according to:

- 1- Areas of life-threatening danger, which lies under the rock masses or storm water drains or inside the campus of the railway
- 2 Inconvenient Areas, a housing, which is building remnants of building materials.
- 3 - Areas that threaten public health, namely:
 - Areas that lack clean drinking water and sanitation.
 - Areas which are held under high-voltage electricity networks.
4. Areas that have been built on state property.

The Methodology of work:

- 1.Survey of unsafe areas by using satellite images to locate the boundaries of unsafe areas.
- 2.Survey of unsafe areas by using detailed maps at the level of building scale 1:500.
- 3.Collecting the statistical data of housing and buildings for unsafe areas.
- 4.Taking photos for the status of buildings in unsafe areas.
- 5.Join the statistical data base of housing and buildings by the geographical data base at the level of building, in addition to link the photo for each building on map.

Fig(17): Presenting Zerzara region in Port said Governorate, the detailed map (scale 1:500) at buildings level and all statistical data such as the properties of buildings, housing and families joined with buildings on map



The Current Tasks of Department:

- The department is currently implementing the Project of Egyptian information society indicators in the form of WEB APPLICATION for Communication ministry.

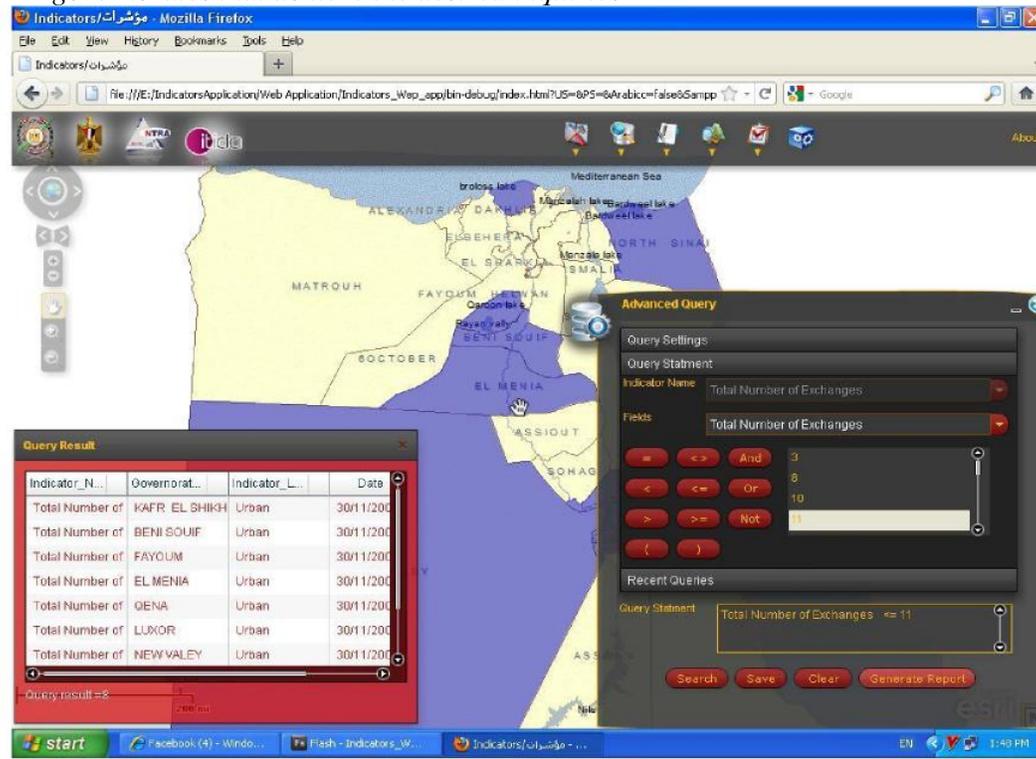
The objective of project:

The use of geospatial data in Egyptian information society indicators Project aims to offer the infrastructure for communications and infrastructure as well as indicators and indicators of the questionnaire on the maps. The possibilities of application are query, update, delete, editing, spatial analysis and production of statistical reports in the form of tables or charts in addition to the color map in the form of printed reports.

This project is the full geographic coverage in the Republic for all telecommunication services and is designated to offer geographical spatial analysis to assist decision makers in the future planning and development.

The source of data: CAPMAS and Communication ministry

Fig (18): Presenting the query screen of the governorates that have total number of exchanges is less than or equal 11 exchanges. The violet color shows the governorates that achieve the desired inquiries



- Developing the web site of department by publishing Electronic Atlas on the site of department and other applications.
- Completing the base maps of the countryside for the republic to ensure full coverage of the Republic. (The base maps of the urban is full coverage)
- Establishing GIS Training Center to build the capacity of people interested in the field of geographical information systems.
- Establishing Census 2016 by using detailed maps 1:500 at the level of buildings for all urban of the republic and also using the base maps 1:5000 at the level of the block of the rural of republic.
- Establishing the main roads network for republic at second level administrative boundaries. The geodatabase of road includes: name, code, direction, length, width, status.
- Use of geo-spatial data in current elections 2011 for all governorates to ensure coverage and non-duplicates and to identify the headquarters of the electoral districts. The benefit of using GIS in elections will enable the efficient management of elections.
- Production of all statistical publication using GIS and posted on CAPMAS web site.
- Use the package of Census Info database technology to disseminate the census results at any relevant geographical level and posted on CAPMAS web site.

Path Forward for Department:

1-The department has great representation in National Committee of Geographic Information systems. It plans to set up the initiative of NSDI for the management and exchange of data and geographic information between the relevant.

2- The department is preparing to get ISO in digital maps.

The department has been a leader in geographical information system at the local level and Middle East and received four awards as following:

- The best cartography in the Fifth Annual Middle East, GIS ESRI User Conference, 1999.
- The best cartographic Design in the ESRI European Middle Eastern and African User Conference 2000.
- The best Geographic Information System for Census 2006 in the sixth Arab Conference for GIS.
- The best statistical Arab Work in 2008 for "Measuring the effect of Using Information Technology on Education".