HIGH LEVEL FORUM ON GLOBAL GEOSPATIAL MANAGEMENT INFORMATION

CONFERENCE ROOM PAPER NO. 10

First Forum
Seoul, Republic of Korea, 24-26 October 2011

Country Report of Palestine*

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Palestine Report On
Using GIS in the Palestinian Central Bureau of Statistics

Introduction:

Since it was established in 1993, the Palestinian Central Bureau of Statistics (PCBS) strives to use modern technologies in its various functions including data collection, data processing, and dissemination of Statistics. PCBS has taken strategic decision to keep pace with global developments in the field of statistical work, and thus sought to employ GIS technology in its work.

In 1995, PCBS started preparing statistical maps in different subjects, as well as in the computerization of enumeration areas in 1997 using MapInfo.

Since the beginning of 2003, PCBS has started the introduction of maps produced by ArcGIS ArcMap in most of its statistical publications. In 2004, PCBS produced the first Statistical Atlas of Palestine, representing important demographic, social, and economic indicators on geographical statistical maps that were produced using ArcGIS ArcMap. In 2007, PCBS started a distinguished project using GIS technology in disseminating data where it established a Web-based Statistical Atlas that contains many of the maps in various statistical subjects in different years.

In 2008 PCBS started to use GIS technology in the development of a geographic database using census data and the maps were produced using ArcMap. PCBS had computerized many maps of urban communities in Palestine using GIS software packages. In addition, administrative boundaries and statistical divisions of localities were computerized to serve PCBS' goals.

PCBS had also developed on its Web-based Statistical Atlas a specialized electronic publication of Census data on population, housing and establishments. PCBS has disseminated on that location a large number of maps by several administrative and statistical levels (region, governorate, locality).

Using GIS technology in the various aspect of the statistical work had made PCBS work easier and participated in presenting the statistical data in a simple and effective way, in addition to make it available to a wide number of users.

Advantages of Using GIS in the Statistical Work:

GIS can be used in almost all stages of the statistical work. GIS adds a great deal to the statistical work and has many advantages, which are:

1. Using GIS in producing urban maps, which are considered main tools in censuses and surveys field work, makes these maps more accurate, up to date and clearer for the surveyors. Consequently these maps make the statistical work more efficient time and economy wise.

2. GIS can be used in the preparatory stage of the censuses and surveys to determine and distribute work areas in an effective and scientific way.

3. Publishing statistical data using statistical maps has many advantages. It makes the statistical data easy to understand, analyze and compare.

4. GIS can be used to store and manage the statistical data in an effective way that makes it easier for both the producer and user to obtain the required data and analyze it.

5. GIS can be considered a universal language that can be used, shared and understood all over the world.

Utilization of GIS in PCBS:

The Palestinian Central Bureau of Statistics (PCBS) has been utilizing GIS in the implementation of many outstanding projects. The following is a brief overview of these projects, their outputs and benefits:

1. Statistical Atlas of Palestine, 2004:

The Statistical Atlas of Palestine was one of the major outputs of PCBS. The Atlas has incorporated advanced methods of statistical data dissemination according to geographical distribution. It has further contributed to user friendly dissemination, thus saving time and effort of researchers and students to understand and link spatial data, perform analysis as well as compare different data. The Atlas is considered a distinctive achievement since it contains computerized statistical maps using advanced Geographic Information Systems (GIS). This technology has facilitated the production of accurate, simplified, and representative maps based on statistical data available in PCBS. This achievement is in line with PCBS' strategic objective to serve all segments of the public through the utilization of different dissemination means.

The selected topics represented in the Atlas are in accordance with international recommendations, and consistent with the experiences of other countries in the production of statistical Atlas. The statistical maps cover the demographic, social, economic, and geographical characteristics. In addition, these maps include characteristics of housing, establishments, administrative divisions, public services and the Israeli settlements.

The objectives of the Atlas-2004 was the dissemination of statistical data in the form of high-quality maps on a variety of geographic levels in an easy and simple manner. This has allowed better understanding of the indicators represented on maps for analysis, and helped researchers as well as policy-makers to utilize the data to better serve the public interest.

The hyperlink of the Statistical Atlas of Palestine is:

http://atlas.pcbs.gov.ps/atlas/pages/P_atlas-en.asp

2. Web-base Statistical Atlas:

The Web-based Statistical Atlas utilizes the latest electronic dissemination means where statistical data is represented on maps in user friendly manner. GIS was used in the development of the Web-based Statistical Atlas. It contains many of maps in the various statistical subjects with different years, and is updated annually with new maps and indicators. The Web-based Statistical Atlas has been selected by the Arab Institute for

Training and Research in Statistics as one of the three best statistical work at the level of Arab States, and PCBS was honored with distinguished award accordingly.

The Web-based Statistical Atlas is designed to highlight statistics from attractive geographical perspectives using computerized maps.

The importance of the Web-based Statistical Atlas stems from the following:

- Presentation of statistical data combined with maps is easier for users to understand and absorb the numbers and link data with their locations.
- Use of electronic publications (Internet, CD, …etc.) in the dissemination of statistical data along with geographic information provides statistics providers as well as users with better chance to explore data beyond office boundaries
- The possibility to utilize GIS technologies for electronic dissemination to display data and information in a clear and comprehensive manner and to reach larger audience at the same time. It provides the possibility of data comparison between past and present, in addition to other different states. It is also convenient for researchers, scholars, and users, to better understand and manipulate information and perform spatial analysis.
- Provides easy and effective way to build and maintain an updated geographical database for presentation of political, geographical, social and economic aspects..

The hyperlink for the Web-based Statistical Atlas is: http://atlas.pcbs.gov.ps

3. Geographic database for the Palestinian Territory:

The Palestinian Central Bureau of Statistics has accumulated since its establishment in 1993 a huge amount of databases on population, social aspects, economy, and geography. More importantly, these databases are updated regularly, thus avail consistent time series that furnish researchers and policy makers with unlimited opportunities to monitor developments in various fields.

In line with PCBS' objectives to maximize the utilization of its large statistical databases, it began in 2007 using the GIS to develop geographical databases based on data of the Population, Housing, and Establishment Census 2007. PCBS has also used GIS to computerize part of the aerial photograph of the West Bank, in addition to the computerization of administrative boundaries and statistical divisions of the Palestinian localities as a step toward developing geographical databases for these localities.

This project was implemented in phases due to the magnitude of work required, where the first phase focused on the establishment of geographic databases for the city of Al

Bireh, and currently to resume the work on four main cities: Ramallah, Hebron, Tulkarm, and Nablus. This project aims to build database for the Palestinian Territory covering demographic, social, economic, and area aspects with linkages to locations at different levels (the Palestinian Territory, governorates, localities, enumeration areas, buildings, streets, etc ...).

4. Site for the dissemination of the Population, Housing and Establishment Census data using statistical maps:

At the end of 2007, PCBS had successfully implemented the Population, Housing, and Establishment Census. This large scale project provided detailed data in various subjects about individuals, households, housing, and businesses. In line with PCBS' objectives to disseminate census data in various means to meet the needs of all users, it had designated a separate part of its Web-based Statistical Atlas using GIS, for census data along with updated maps that contains data to be manipulated by subject and by level of geographical location.

The objectives of PCBS from disseminating census data in the form of maps in its Web-based Statistical Atlas include:

- To disseminate statistical maps that represent census data covering various social, population, and economic indicators.
- To increase the accessibility of users to statistical information.
- To represent census data in a simple manner to serve all the public.
- To save time and effort of researchers, scholars and users (individuals or institutions) and assist them in understanding and utilizing the census data for analysis.
- To disseminate census data using maps by multiple geographical levels and with more details (region, governorate, locality, statistical division).

The hyperlink of census data at the Web-based Statistical Atlas is: http://atlas.pcbs.gov.ps/Census_07/

5. The Statistical Atlas of Palestine, 2009

The Statistical Atlas of Palestine, 2009 is the second version after the 2004 Statistical Atlas. PCBS had decided to prepare the Statistical Atlas of Palestine, 2009 after the implementation of the second census in 2007 in order to facilitate the presentation of data through linkages with geographical locations using modern GIS.

The focus of the Statistical Atlas of Palestine, 2009 is on the analysis of the results of the Population, Housing, and Establishment Census 2007 and its geographical distribution. In addition, statistical maps were prepared to allow comparison between 1997 and 2007 census' data, to shed light on changes in social, economic, and geographic conditions. Also, maps allow data comparison that is relevant to establishments, buildings, and administrative divisions in Palestine.

Statistical maps in the Atlas were supported by statistical tables and graphs, as well as a brief explanation about the maps and data. Statistical maps show census data on population, labor force, education, culture, housing, natural resources, buildings, establishments, and settlements. Maps also show statistical divisions, which is used in presenting statistical data on a detailed geographical level.

Data representation was prepared on the governorate level (one of the administrative divisions in the Palestinian Territory) in the West Bank and Gaza Strip. The selection of topics represented in the Atlas maps was in accordance with international recommendations, and consistent with the experiences of other countries in the production of statistical Atlas. Maps show demographic, social and geographical characteristics as well as characteristics of housing, establishments, administrative divisions, public services and the Israeli settlement.

The hyperlink of the Statistical Atlas of Palestine, 2009 is

http://www.pcbs.gov.ps/DesktopModules/books/booksView.aspx?tabID=0&lang=en&ItemID=1&mid=11239

Other outputs using GIS:

PCBS has used GIS in the production of other important outputs including:

- General map of the Palestinian Territory.
- Computerized urban maps for some localities.
- Shape files of the administrative and Statistical divisions of Palestine such as: The locations and boundaries of Palestinian localities, boundaries of statistical divisions and enumeration areas, the path of the expansion and annexation wall,

the locations of Palestinian localities in 1948, and the location of Israeli settlements.

Future outlook:

PCBS plans to increase its utilization of GIS technologies to support relevant functions and to further develop its Web-based Statistical Atlas to include detailed data for different years and to become more interactive. PCBS aims to provide users with the ability to generate customized maps showing user tailored statistics through its Web-based Statistical Atlas.

PCBS also plan to computerize aerial photographs of all localities in the Palestinian Territory using GIS technologies to support its work in the implementation of both surveys and censuses to identify buildings as well as housing units. In addition, PCBS plans to continue the utilization of GIS technologies to disseminate its official statistics and to develop detailed geographical database for Palestinian localities.

PCBS looks forward to developing international links with relevant institutions in geographic information systems, and sharing of information and data with them.