Case Study of National Experiences of the Islamic Republic of Iran on the Use of Contemporary Technologies in Census Mapping

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National experiences on the application of contemporary technologies, including GIS, GPS, RS... in census mapping in the Islamic Republic of Iran are as follows:

1- REMOTE SENSING

Remote sensing technology was used for updating urban maps before execution of any census by using satellite images. The images were form IKONOS and QUICKBIRD platforms.

However, the necessary corrections such as atmospheric and geometric corrections were applied by NCC (National Cartographic Centre of Iran) and consequently, the modified and processed images were delivered to the SCI.

The software packages used in the Census were: ArcGIS and Autodesk MAP.

The satellite images were placed in the background of the urban maps in order to compare them with the maps and find any changes or newly appeared features in them. Then changes and new features were also digitized in the resulted maps.

We faced some problems in the process, for instance the narrow alleys were not apparent clearly and needed to go under field control.

Results: updating the maps of 140 cities (total covered area: 65000 hectares)

2- GPS

GPS technologies were applied in the SCI for updating statistical maps before execution of the censuses.

The used receivers were ASHTECH PRO MARK 2 and LIECA SYSTEM 500 and GARMIN 76S.

In the rural maps, features such as villages and roads were surveyed and coordinates of new feature were registered by the handheld receivers. The maps were also modified by the cartographic operations.

In the urban maps differential GPS (DGPS) method was used and the map blocks of cities were updated accordingly.

Problems: high buildings in the urban areas caused cycle slip and slow downed the work pace.

In spite of the problems, we succeeded in updating the urban and rural maps of 2 provinces.

3- GIS

3-1- THEMATIC MAPS

  The thematic maps are supplied based on the request of Publications and Information Dissemination Office or other offices of the SCI's.

 During the 2006 Population and Housing Census, thematic maps were created simultaneously for controlling the progress of the Census.

Thematic maps are also supplied based on the results of 2006 Population and Housing Census. ArcGIS software was used for creating thematic maps.

3-2- DELINEATION OF EAs

Regarding Delineation of EAs ,SCI has adopted following measures:

- Cleaning up and making the maps GIS-ready.

- Preparing attribute tables (the work volume for each block and village)

- Creating shapefiles and linking attribute tables to them.

- Delineation EAs and supervising areas by using REGION MASTER Software.

- Cartography and preparing maps for enumeration.

The softwares in use were ArcInfo, ArcView, RegionMaster and Autodesk MAP.

Result: delineation about 40000 EAs.

4- Using PDA in the statistical projects

Portable Digital Assistant were used by the SCI staff mainly for

- Providing the list and addresses of samples.

- Preparing maps in shape file format.

- Linking samples attributes tables to shapefiles.

- Data collection by using PDA. (In designed forms)

Transfer of compiled data   was done through following methods: data:

1. Transferring   stored data on PDAs through connecting them to the web site of the SCI via the Web.

2. Collecting stored data by returning enumerators' PDAs to the SCI.

The devices in use in this project were HP6955 and HP1950.

Checking the validity of results and planning for finding better methods for executing project were among the outcomes of PDA application.