In The Name of God, The Compassionate, The Merciful

Mobile Digital Systems (PDAs) in Statistical Surveys

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Introduction

The Statistical Center of Iran has done the best to use IT capabilities available in data collection and data processing procedures in conducting yearly statistical surveys.

Due to the fast changing environment of IT, we witness introducing of some more precise and modern methods in this regard. By using PDA, the SCI has recently conducted a survey. The aim was to evaluate this

technique and hardware capabilities in the field work.
 Major assumptions have been based on the fact that using PDAs not only increases the speed of data collection but also improves the quality of collected data. Moreover, there will be a considerable saving on paper-works and questionnaires as well as the promotion of IT know-how in the SCI.

Executive procedures of the survey

- Preparing and creating an appropriate environment for conduct of the pilot project such as:
- Formation of an experts committee for conduct of the pilot project
 Selection of GIS programming firm in order to customize the interface and workspace of the PDAs.
- > Preparing questionnaires in digital format
- > Preparing a text for briefing field workers
- Conducting a 3- day training workshop for the field workers.

Brief Introduction to the Survey on Collecting Producer Price of Manufacturing Products

- Survey for Collecting Producer Price of Manufacturing Products is currently conducted on a monthly basis all over the nation.
- In this survey, a small questionnaire is prepared for selected industrial products.
 - The questionnaire is comprised of 4 different sections which are as follows:
- 1. Geographic address of the establishment or factory.
- 2. Establishment or factory specifications
- 3. Enumerator's name, and address

4. Specifications and price of the selected goods in the current month including: name and unit of production, ISIC code of selected goods, price per unit and reasons for its change (if any).

Content of Training Course:

- Introduction to the Survey
- **Techniques of price collection Introduction to using PDAs**
- Introduction to the Survey data collection software
- Introduction to GIS software and digital maps
 - Introduction to GPS
 - and work flow of the Survey

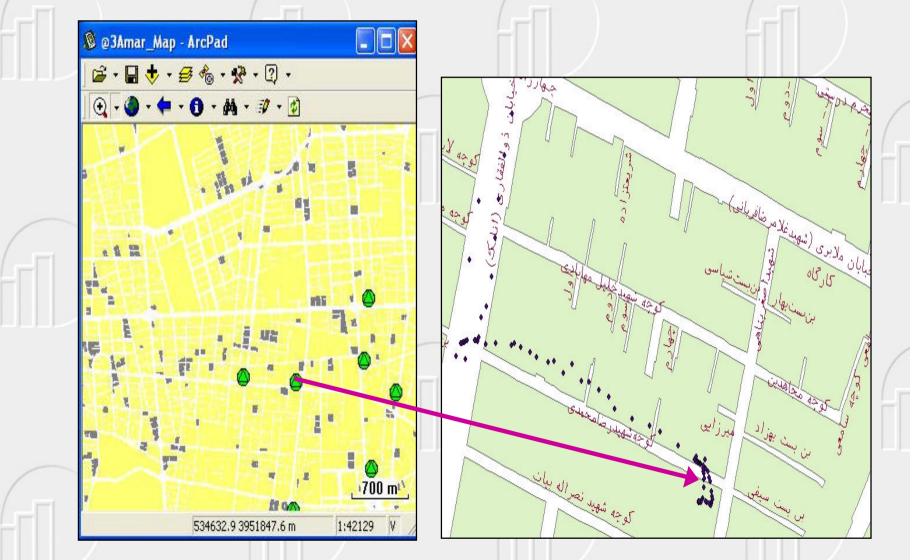


- Training in field work (1 full day)
- Question and answer about the whole training course and conclusions
 - Training exam and selection of 20 field workers for the survey

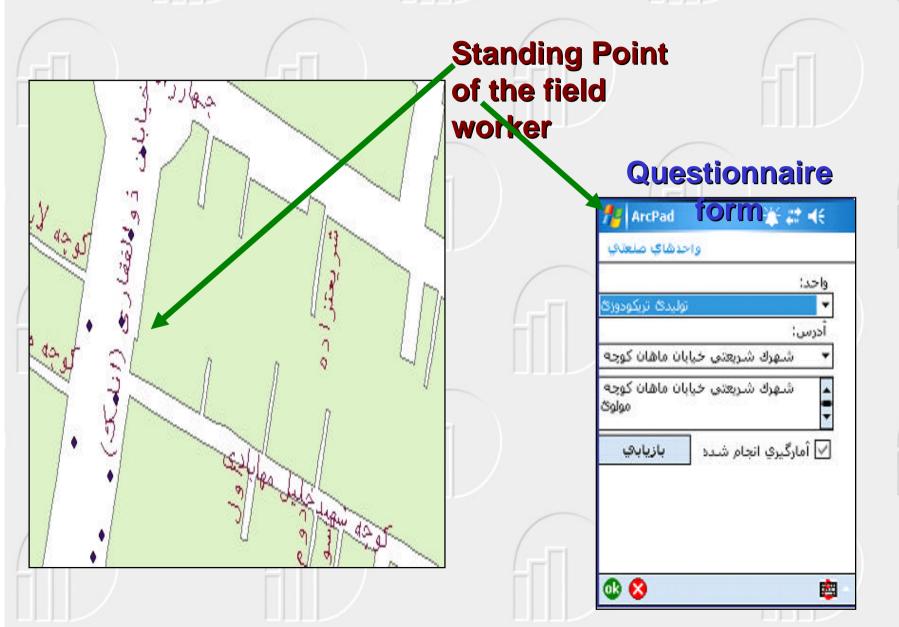
Survey conduct and supervision procedures

- **Grouping the field workers**
- Assigning a survey district to each field worker.
- Supervision and Monitoring:
- Direct supervision by the members of conducting committee.
 - Gathering Daily reports as well as finished units of work from all field workers.
 - **On-site and remote problem solving of the field workers.**
- Data verification and modification by the provincial expert of the survey at most 12-18 hours

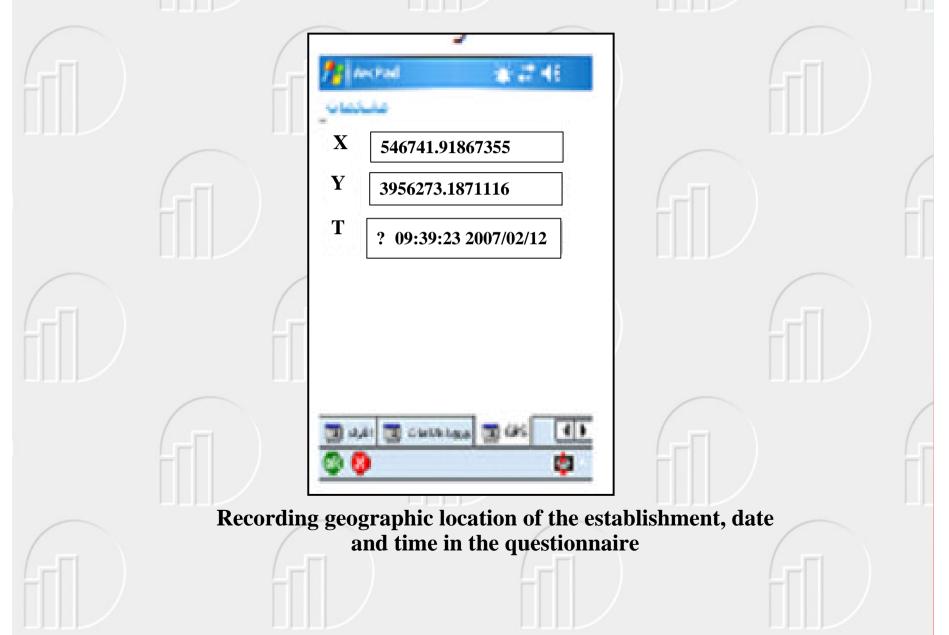
STANDING POINT AND MAP LOCATION



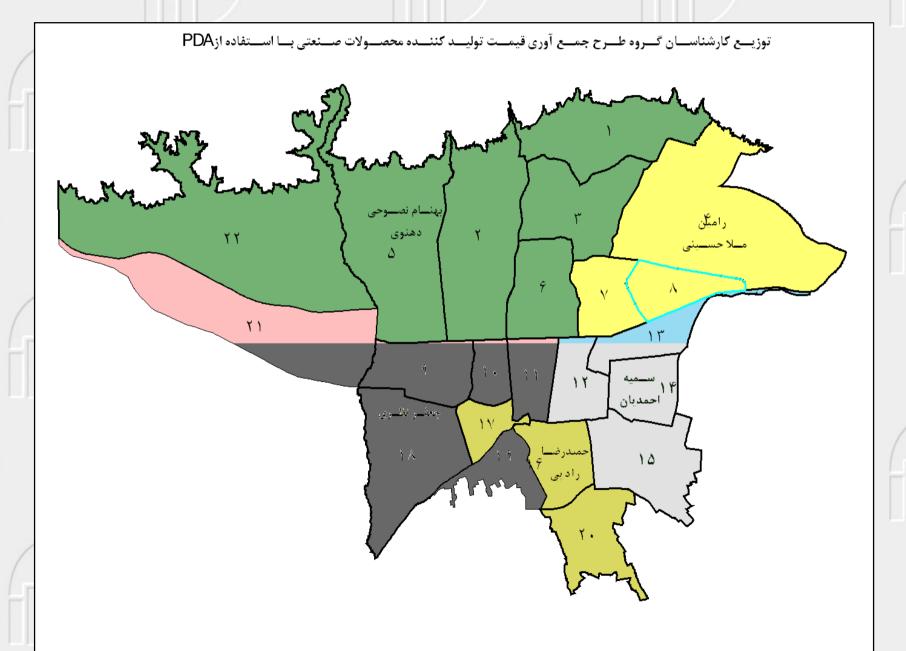
GATHERING GEOREFERENCED DATA BY FIELD WORKER



Filling Questionnaire by the field worker

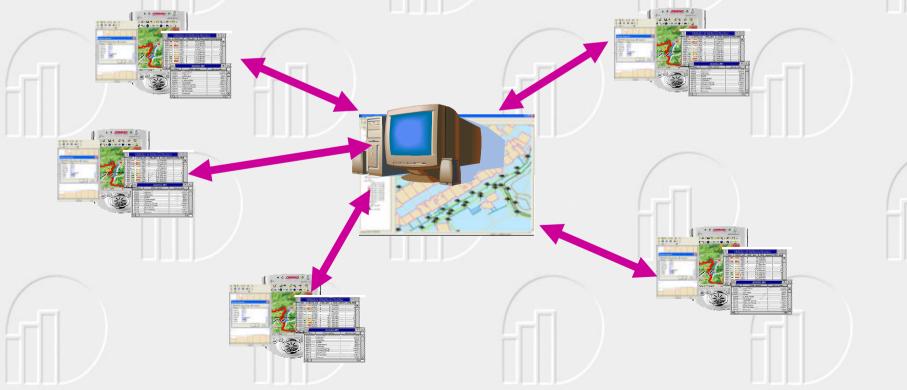


Delimitation of survey area by work units



Feasibility study of different methods for data Transfer to the headquarters

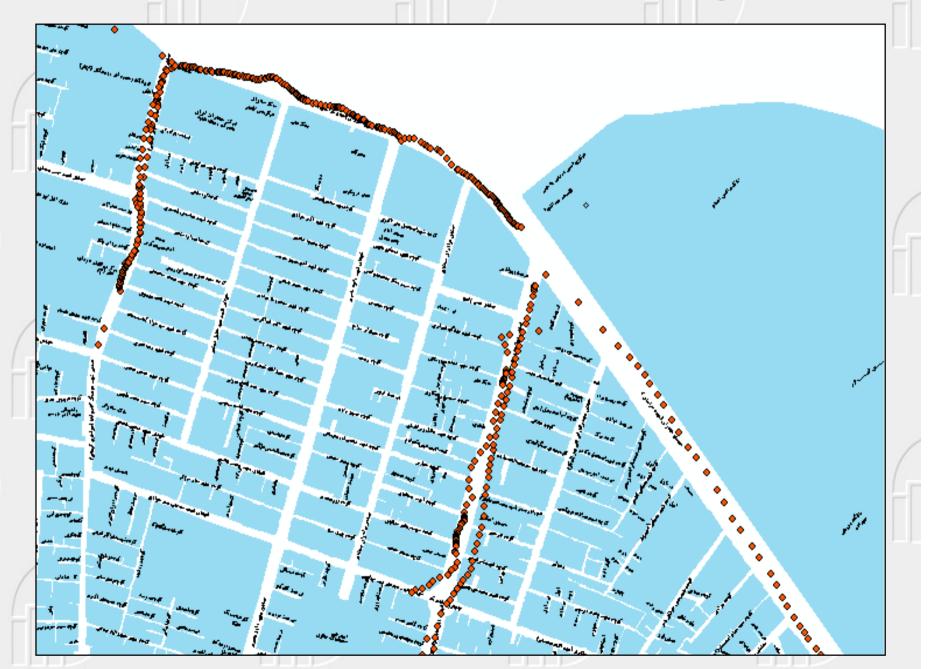
- **1.** Data transfer to the headquarters by the field worker
- 2. Using internet for data transfer i.e.: coffee nets, personal internet access ...



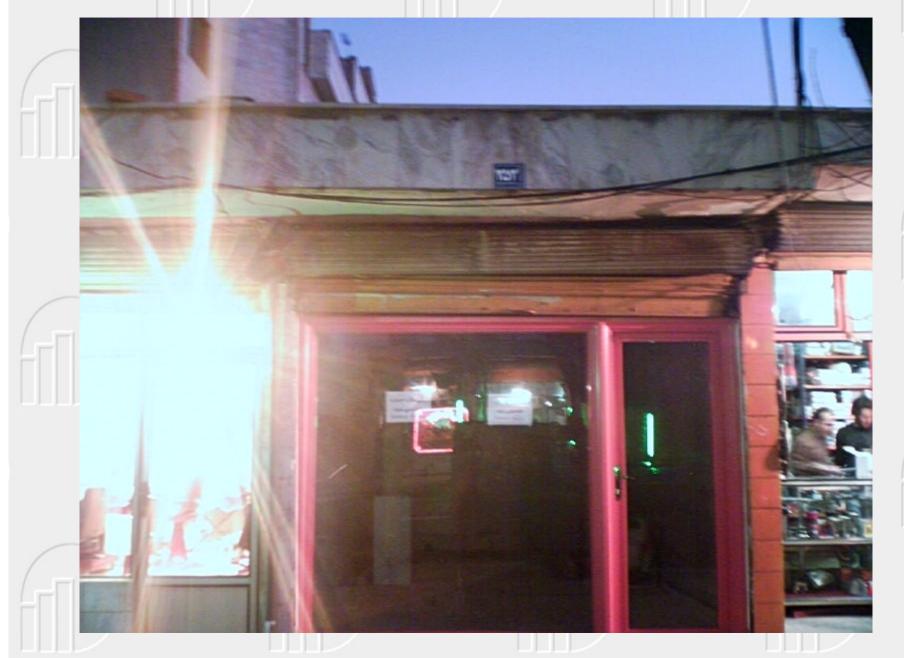
Samples of some major field activities in which the GPS-assisted device is used



Field work districts and GPS tracking



Picture of changed or dislocated establishments

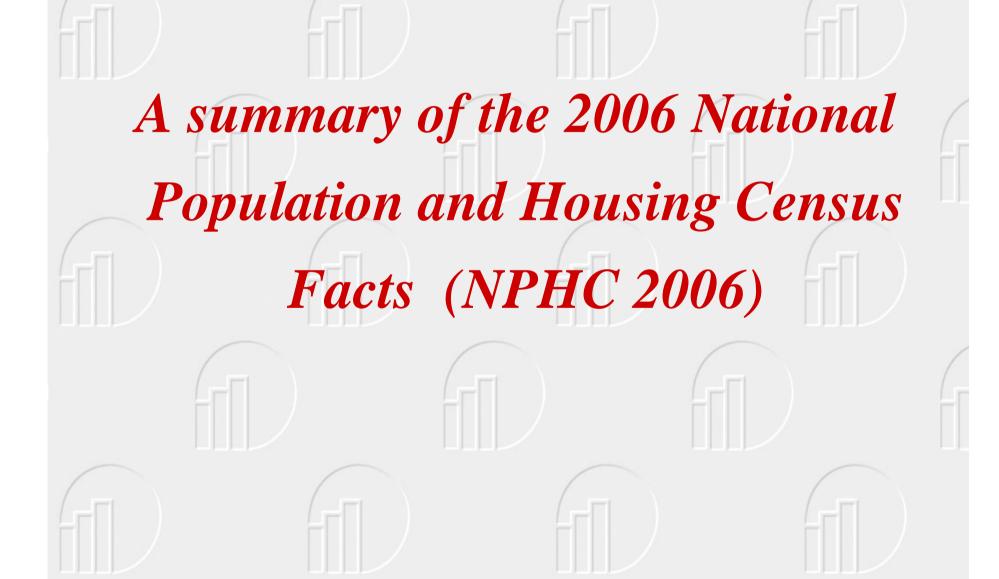


Relating to address database, GIS maps, GPS tracking and questionnaire databases

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Results and Outcomes

- In addition to large amount of budget cuts, use of PDAs does have an extensive effect on quality of data.
- > By using intelligent techniques of data collection,
- on- site verification as well as necessary data modifications and corrections are easily accessible.
- > By adopting this technique and proper communication infrastructure, on-line monitoring, supervision and problem solving is possible and easy.
- Ensuring the coverage level as well as updating with IT techniques need preparation of GIS ready-made maps for address geo-referencing which in turn will exert huge burden for the mapping unit of SCI.



Specific Characteristics of the *NPHC 2006*

1.Mixed implementation of Census and sample survey

In the mixed method two questionnaires were used: a short one comprising 27 general questions for all households and a long one including 56 detailed questions completed for only 10 percent of households.

Advantages

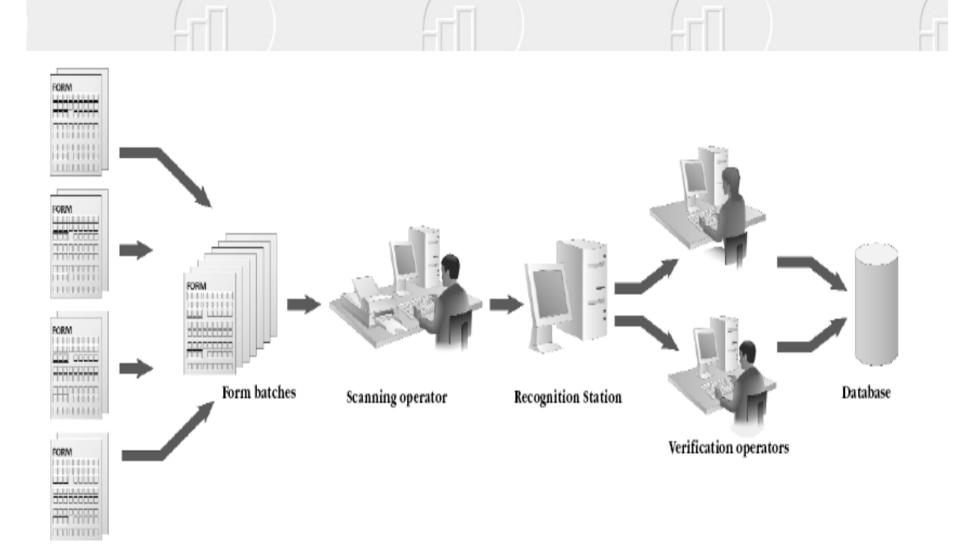
Lower census costs (between 15 to 35 percent)

Lower sampling errors which resulted more accurate results

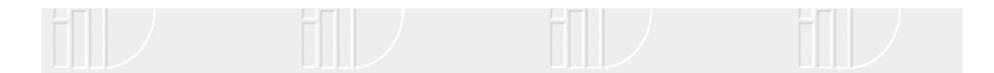
Possibility to add to the questionnaire items

Estimation of "net under-enumeration" for a better evaluation of census output accuracy

- 2. Estimation of "net under-enumeration" for a better evaluation of census output accuracy
- 3. Using ICR (intelligent character recognition) system for data processing Advantages:
 - Faster process
 - Elimination of data entry
 - Elimination of data entry errors
 - More accuracy in reading data
 - > No need to computer sets and data entry workforce
 - > No paper work during data processing

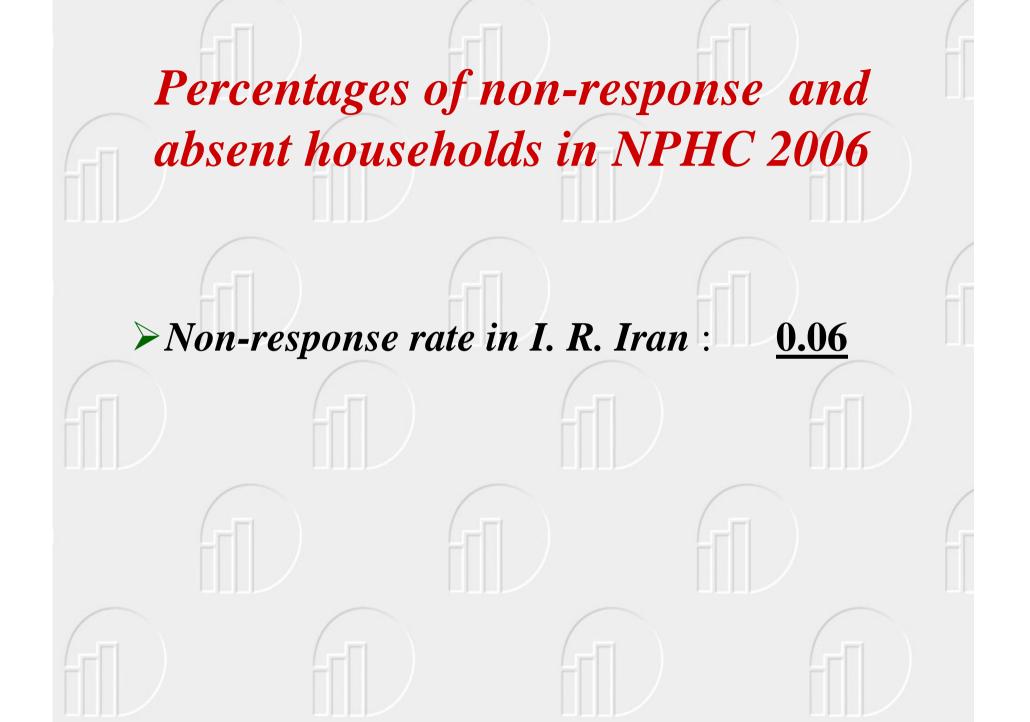


Incoming forms



Summary results of the NPHC2006

	Description		1996 Census	2006 Census		
	Population		60055488	70472846		
	Sex ratio		103	104		
	Population growth 1986-96 rate		1.96			
		1996-06		1.61		
1	Urban population		36817789	48245075		
	Rural population		23237699	22227771		
J	Size of household		4.8	4.03		
	Least populated pro	vince (Ilam)	475000	545000		
	Most populated prov	vince (Tehran)	10343000	13413000		
Number of households			12398235	17495646		
	Number of housing	units	10770112	15972061		
Ratio of household/housing unit			1.15	1.09		
1	Literacy rate		79.51	84.61		



Census implementation

The implementation of the Census began on 28 October 2006 and lasted for 20 days.
 Amount of work done during the implementation process: 1,800.000 man-day

Data processing

About 2100 persons participated in data processing activities all over the country.
 Amount of work done for data processing activities: 315000 man-day

Census results

Detailed results of the Census will be published in 77 main tables and 26 summary tables.

Results can also be accessed through the SCI's website at <u>www.amar.org.ir</u> or <u>www.sci.org.ir</u>

Remarkable aspects of the 2006 Census

- More than 63 percent of the census manpower with university degrees
- The highest cooperation rate compared to previous censuses: 99.94%
- Use of ICR technology with the precision of recognition rate up to 99.67%
- Inclusion of 56 questions in the census questionnaire which was the highest number compared to previous ones

The Pilot Census

A number of 120,000 households in five sub-provinces and some districts of Tehran and Karaj were covered in the pilot census.

Census forms

• There were 5 forms for the census including "listing form", "household questionnaire (containing general items), " another household questionnaire (containing general and detailed items)" "institutional households questionnaire" and "village ID".

Total number of forms published for the Census amounted to 75 million sheets of A_4 paper size.

Trainings

• During 3 training stages, about 110,000 persons attended 2376 classes all over the country.

