

**POPULATION AND HOUSING CENSUS' TRANSFORMATIONS
IN MEXICO**

ANTECEDENTS

It has been almost a decade since the XI Population and Housing Census 1990 was realized, in which important strategies were developed in the census collection that allowed the optimum use of resources offered by informatic technologies in that time.

The product obtained by this development was to achieve preliminary and definitive results in a short period of time, which marked a milestone in census events quality.

The important changes in this project were to use for the first time digitalized cartography, an opportune covering control and the products released in optical and magnetic means.

This census success allowed to define clearly what the future census events would be like, where the technological advance would have a solid compensation with respect to a versatile procedures definition for data control in all project stages and results dissemination.

Under this perspective, it was included in the 90's the surveys realization that contained the analysis of the three main components of the demographic dynamic in context to allow complete and cheaper information and with greater opportunity. This surveys are ENADID '92 and ENADID '97.

Also in 1995 it was realized the Population and Housing Counting, which parting from an Enumeration and a Survey, gave us the measurements to main sociological and demographical topics in a opportune time.

Integral focusing of Socio-demographical and demographical study was to apply in the Population and Housing Census 1990 a questionnaire of basic content to the total population. About the surveys it was going deep into those topics that because of its complexity were not able to have them in a census questionnaire and in the Counting Enumeration 1995 it was used a questionnaire that allowed a quick population and housing recount capturing minimum characteristics.

Under this strategy activities that have allowed to decentralize even more the operative design have been proved, the analysis of the information with the use of historical data and processing. So they have taken advantage of the following field operations, and the teleinformatic networks processing of the Institute. For the training documents and manuals edition, we have been using the computing equipment which has greatly improved its quality and opportunity.

TOWARDS THE 2000 CENSUS

The XII Population and Housing Census 2000 is being prepared, searching for methodological bases to reach quality and opportune census data presentation.

The Mexican Republic is geo-politically divided in 32 states and in 2,435 municipalities. Population live in more than 201,000 localities where a 75% are less than 100 inhabitants and its characteristic in geographical dispersion and in some cases its inaccessibility because of the uneven ground.

In the localities with more than 2,500 inhabitants (2,827 according to the Counting of 1995) there are approximately 1.3 million of blocks.

For geo-statistical results, INEGI groups blocks or localities with dispersed country houses (rural localities), in a little more than 53,000 geo-statistic basic areas (AGEB).

Therefore, during the Census of 2000, it is estimated to visit, approximately 22.4 million of houses with the participation of 440,000 people in charge of the field operations organization and information collection.

Information will be processed in 10 regional offices distributed in the country (as it is done since 1990) 400 computer centers will be established, one for each zone headquarters which will depend of the state offices. This 400 zone headquarters will group municipalities or will divide some to ease census planning, development an collection control.

The methodological bases of the project are:

- Combining a basic questionnaire to all the population and an amplified to a sample focusing probability, which will be of national covering with a separation for each one of the states and its municipalities, all cities with 100,000 and more inhabitants o state capitals, all metropolitan areas, and three locality sizes in each state.
- Population enumeration based on habitual residence.
- Collection done in two weeks.
- Direct interview only once each house by means of two questionnaires, one basic and one amplified.

- The sample size is approximately 2 million houses and the schema is to select two blocks for each urban AGEB and two localities for each rural AGEB.
- To structure a theoretic-conceptual setting for each theme.

With this premises, it is contemplated the publishing in printed, magnetical, and optical means of the preliminary results within four months of concluded the field operations and the definitive results after a year.

TECHNOLOGICAL RENEWAL

To face the challenges previously mentioned, INEGI is now in the renewal of its informatic platform as an introduction to the 2000 round censuses development (Population and Housing, Economical, and Agriculture and Livestock).

This is the best solution, due to the reason that the existent equipment maintenance is every day more expensive, besides its capacity and speed to access databases is under the actual level that the informatic market is offering.

Although it can be supposed that the renewal of the informatic platform is very expensive, it is also important to mention that the benefits will be great, producing in an oportune time the results presentation and the continuous equipment usage in the intercensus projects.

Within these prospects it is to notice:

- A telecommunications network expansion, covering the state ambit, obtaining a bigger approach in the project development.
- Cartography areas equipped to obtain a census cartography with metrical precision.

- A larger storage capacity and velocity in the mainframe that will be established in central and regional ambits.
- The substitution of capture terminals for personal computers that will allow to a more versatile use as processing units at the capture ending.
- The equipment for 400 zone headquarters will easy the field operations control, the preliminary data integration, the covering analysis, and the information quality.

Added to this, the software platform will be renewed by means of acquiring database management software, simplifying the systems programing and the data explotation contained in the databases.

THE USE OF NEW TECHNOLOGY BEFORE THE CENSUS COLLECTION

Acquiring new technology will allow us to count with metrical precision cartography for the field operations planning in the urban and rural areas in 1999.

Historical databases will be constructed with the information of previous events as field operations material, that will permit prior to direct supervising towards those areas that show a population and housing growth or diminution in an important way, to set up comparisons between the Census of 1990 and the Counting of 1995, as with other alternative sources. In the same way, it will be able to determine the collection advances at anytime, with the use of initial geo-statistic frames in magnetic means, marking out the visited areas and applying actualizing cartographical procedures, warranting the complete covering and the information quality.

It will also be able to count with a classification of those difficult access areas so the planning can be sistematized for the responsibility definition areas and the productiveness duties allotment.

The selection of areas that will be collected by the sample will be realized in an automatic way.

The systems programming needed in data processing will be done using, fourth generation language, simplifying its development and opportunity in their test.

THE USE OF NEW TECHNOLOGY IN THE CENSUS COLLECTION

During the census questionnaires collection is planned an automatic advanced control and information covering. Also the capture formats for 400 zone headquarters preliminary results and the most important topics. It means that the formats will be used to measure the field operations advance and to obtain preliminary results simplifying the covering control and the quality control in the information, almost instantly and having the possibility of an analysis of these components in a central, regional, state, or local level.

With this strategy it is pretended that at the same time of the census collection it will be able to obtain indicators that allow to measure capture data quality and a continuous covering control.

In this way, the collection productiveness will imply not only the collection areas, but that the collected data are reliable, taking as a comparative frame the previous events dynamics, what will provide elements to justify or determine action lines to correct detected deviations.

The telecommunications network will allow the information previously mentioned to flow in a fast way to detect field problems at state, regional and central office and take the different solution alternatives.

Within this procedure, field quality will be controlled establishing a direct contact with collection areas.

THE USE OF NEW TECHNOLOGY IN DATA PROCESSING

During the processing it is planned the use of computing equipment to control receiving and storage of the material coming from field, making the inventories and the questionnaire flow to the capture areas in an automatic way.

As for data capture, this, will be done the traditional way, it is typing data as it is in the questionnaire with sample verification in package level of information, guarantying transcription quality to magnetic means.

To make the information capture agile, it is planned the average set up of 120 personal computers per each of the 10 regional offices INEGI has, having two capture turns.

In this way it is expected a 2400 capture staff during an 8 months period, in which the total capture is estimated to be finished.

At the same time and taking advantage of the equipment's big capacity it is planned the allotment of open questions, keys processing and the questionnaires intern constancy analysis, with the maximum reduction of processing that requires manual analysis.

For this results, it is expected to emit county level reports that permit watch over the topics quality that will be published during the process stages, so the information analysis can be anticipated for the final tables emission.

Also to liberate the information there will be available databases of previous events to make comparisons in automatic ways at a municipal level. The great storage capacity will enable users to work with historical databases, and activity that wasn't able in the past due to limitations in space and memory.

Having regional and state level equipment the obtainance of final results will be a decentralized activity and the use of national telecommunications will allow to have a global situation context with the information in any stage of the process.

To obtain the definitive results the facilities that provide the management database software will be used for the group construction and topics cut that will be published.

More over, the equipment will permit the tables preparation (edition) in automatic way and decentralized in state centers.

THE NEW TECHNOLOGY IN INFORMATION DISSEMINATION

In the current time, the main users of census information are demanding the products in optical and magnetic means. In attention to this demand, INEGI has incorporated since 1990, the Population and Housing Census and other products to the communication networks, inside (INTERNET) The INEGI Site has as main objective, just like all of its other products, to provide national and international users opportune and reliable information about the country's situation from a statistic and geographic point of view, this is for reference or decisions.

The work in data dissemination in the XII Population and Housing Census 2000, will be to increase editorial production in theme contents, geographic detail, new topics collection, new products generation and presentation means.

It is pretended to increase products that involve statistical geographical referenced information by the systems development that permit to stratify, regionalize, and clasify the referenced data to the digitalized-cartography.

The new technology in software has been great advances in the topics mentioned, so it will be a challenge for the Institute to take advantage of these resources and to offer users and information with quality and opportunity.

CONCLUSIONS

The technological advance that has been developed in the last decade, has been impressive. The memory capacity and data access will permit to have an optimum time process. The software of fourth generation and the one that is provided by the results graphic presentation allows to visualize a broad scale of applications that will simplify the analysis of sociological and demographical information.

It is duty of all institutions working for the generation of statistics, to establish the new methodologies according to this advance to provide the user of this information with products of excellent quality and to be generated with the required opportunity to make precise decisions.

The new millenium offers a broad perspective in new technology that will be generated and the use of the information has turned into an everyday duty that approach us to a statistics culture.

The challenge for all of us is to set the methodological bases towards the change that this new millenium requires.