



Recent developments in the preparatory arrangements for Egypt census 2016

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This paper discusses and explains the recent developments in preparatory arrangements for the Egyptian census 2016. These developments are 5 main developments:(1) Applying joint committee (2) Applying a new methodology and using long and short questionnaire (3)Making electronic census and deciding to use tablets in the census field work (4) Applying a new field work rearrangements (5) creating a census mapping project .

The Central Agency for Public Mobilization and Statistics (CAPMAS) is the only official source of data and information in Egypt .CAPMAS always seeks to achieve several main goals. The most important goal is developing its system, strategies, and methodologies. As census is the largest and most important work in CAPMAS, so it decided to make huge developments in 2016 census system. Five main developments are to be used in order to improve the execution process of the 2016 census at the Central Agency for Public Mobilization and Statistics (CAPMAS).Maps of the GIS department of CAPMAS will be provided to all researchers who will work in 2016 census over all the country governorates on both urban and rural areas. For the first time Egypt will use the theoretical counting method (Dejure). Egypt will start to apply e-census for 2016 census pretests. A joint committee was established in 2006 to transfer experience to 2016 census .Tablets are to be used in Egypt 4th census pretest and in the census field work. It is expected to obtain more accurate data and faster results publishing

Key words: census methodology; questionnaires' rearrange; New Variables (NV), Intelligent character recognition (ICR).

1. Introduction:

Population census is the most important activity that is conducted by the official statistical offices in different countries all over the world. Egypt is one of the countries that have conducted census long time before, as the first Egyptian census was in 1800. But the first official census was in 1882. Egypt 2016 census is the 14th census .Egypt applies all the international criteria definitions, and methodologies in executing the population censuses. Also Egypt uses any of the definitions and recommendation from the statistical committee of the United Nations (UN) in its' statistical work.

CAPMAS is the official source in the Arab Republic of Egypt responsible for supplying the state agencies, universities, research centers and international organizations, with data and statistics which helps planner, And decision makers.

The most important goals in CAPMAS is to apply the unified and comprehensive work system statistical in accordance with the international standards, concepts, definitions, statistical



terminology and the development of information system to keep in line with the scientific advances and to introduce the latest technological methods in the development of work systems and to build human base able to accommodate modern technology.

Papyrus confirms that in 3340 BC there were counting individuals and righteous soldiers for military service. In modern age the second estimation was conducted in 1821 , the third in 1846 during the era of Muhammad Ali, and fourth one was conducted in 1873, while in 1882 the first comprehensive census of modern scientific concepts was conducted , and the total population reached 6.7 million people, and in 2006 was implemented the last census (XIII), as the population reached 72.8 million, with an increase of (22.8%) compare to the 1996 census (59.3 million people) and the 2016 census will be the fourteenth census.

CAPMAS always apply all the international criteria and recommendations in the census methodologies and in the field work; it also makes huge improvements in the coming census. These improvements will be presented in details. It is estimated that there will be 23 million households in the 2016 census and the number of expected population in 2016 expected to be 92 million people.

2. 2016 Census preparations' developments:

(1) Joint committee :

That was established in 2006 with members who already participated in 2006 census .those members will transfer their experience by improving 2016 census .the joint committee and CAPAMS census committee have several purposes which are:

1. Overcoming the previous census problems.
2. Transfer and share their experience Developing and enhancing the census system.
3. Developing and enhancing the census system.
4. New methods and techniques for training courses

(2) Applying anew methodology and using two questionnaires:

2.2.1 After several workshops with International and regional experts and specialists, CAPMAS approved a new methodology for 2016 census using the theoretical method of counting, which depends on the habitual residence of the individual (Dejour) instead of using the actual counting (Defacto).

2.2.2 CAPMAS will use two questionnaires (long questionnaire –short questionnaires). The long questionnaire will be used with 10 % of the population size in 2016, but the short one will be used with the rest (90%).the long questionnaire contain 15 questions that gives data about(labor force – disability-national migration).

(3) Field work rearrangements:

2.3.1 Rearrange stages of field work to become a (numbered and limited to buildings - the stage of counting the population - MBR installations stage) .As there will be a reverse between the building counting stage and the population counting stage .So the population counting will be before the building counting



This will help in reducing the time between the building inventory and the population counting stage. Also ensuring that families haven't move during the short period between the buildings and the population stage.

2.3.2 Dividing the enumeration areas in to blocks in both urban and rural areas, after identifying road problems and administrative borders, into spatial areas that consist of (1500-200 units), with average 1000 HH. The enumeration area will need 1 supervisor and 2 counters in the 2016 census field work. Each counter will work with 450 HH by the short questionnaire, but the supervisor will work with 100 HH by the long questionnaire.

(4) IT developments:

2.4.1 Using Internet Data Collection (IDC) that is called E-census in counting the families that are willing and able to fill the population form and through the internet. The supervisor gives the families an ID and user name to login to the site to register during the counting period. Electronic census will save time and effort; also respondent can answer, save, and retrieve data any time needed.

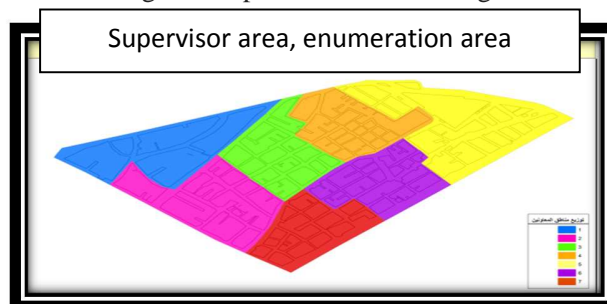
2.4.2 CAPMAS is now studying of the use of tablet devices in the work field to meet the building inventory form with representatives of the Brazilian Census agency during a committee meeting 46 in New York to benefit from the experience of Brazil, in coordination with UNFPA to provide tablets or in coordination with other agencies to provide 25 thousand devices. Tablets will be used in the 4th pretest that will be conducted in October 2015 and in 2016 census field work. Tablets will have several benefits like:

1. Giving higher data quality.
2. Increase efficiency, productivity and decrease physical cost of paper and transportations.
3. Automatic storage and validation

(5) The Enumeration Mapping Project of 2016 Census for Population, Housing and Establishments

2.5.1 Planning for the 2016 census mapping project has been done after the completion of 2006 census for enumeration of buildings and establishments on maps and division of Egypt into spatial enumeration areas in order to avoid the negative aspects that have emerged due to use of roads system in the 2006 census.

The most important negative respective is overlapping areas of work and the presence of variation in the size of work areas for the surveyors which cause of difficulties on work supervision and control on field work.



2.5.2 The spatial enumeration areas :

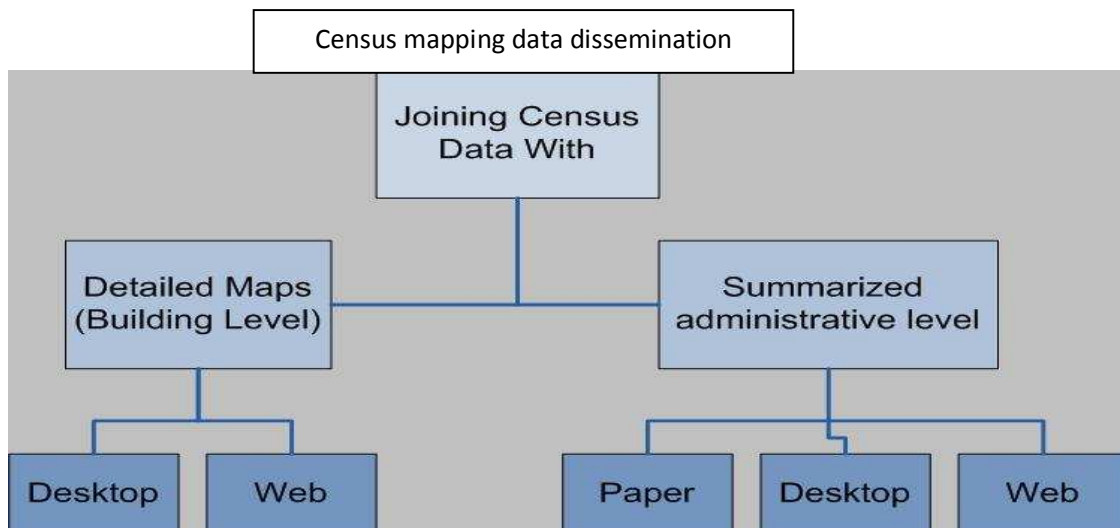
System was selected to be applied in census 2016 figure (1) since it satisfies the fairness of field work distribution among the surveyors also it helps for adjacency for work areas for

achieving efficiency , supervision and field control with the possibility of calculating the required numbersd of field work members during each census phase through the use of models designed to determine the number of buildings and their contents of units and families, in addition to idintify the adjacent work areas borders in order to achieve full coverage of all Egypt regions.

2.5.3 Hardware and software: Which are used the headquarters and governerates branches have been prepared with computers network in addition to a number of scanners for maps, printers, plotters and central servers’ .Software and databases systems include Erdas Imagine, AutoCAD, ARCGIS, Oracle, ARC server.

2.5.4 Manpower: The employees were chosen from professionals , technical trained qualified persons who have the ability of dealing with geographic information systems The number of workers of the project reaches more than 1,000 researchers , supervisor, geographers, planning engineers ,computers engineers and software developers .

2.5.5 Sources of maps used: Satellite images with accuracy 50 cm which the digital maps are updated using them .The digital maps with scale (1:500) are produced for the whole country including rural and urban areas to be used on the census 2016 field work.



Advantages of using the census mapping projects in 2016 census:

1. Ensuring Maps consistency, facilitating census operations and overcoming the roads system problems.
2. Supporting data collection stage in order to eliminate overlapping.
3. Maps make it easier to present, analysis and dissemination census result (post-enumeration) by using spatial analysis techniques for producing statistical thematic maps.



Conclusions:

- I. Studying all international experiences in censuses helps a lot in developing any national census.
- II. Developing any statistical work system means seeking to apply the recent and the most technological ways in the all of the NSOS especially in largest national statistical work (2016 Egyptian census). Also taking benefits from any statistical experience of other countries in their census systems is a main point to improve the census system and strategy in order to take a new version or to change a methodology.
- III. Joint committees that matches the systems of the series censuses always play a huge role in developing and enhancing the next census, also overcoming the previous censuses problem or drawbacks.

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