

**United Nations Statistics Division and  
Economic and Social Commission for  
Western Asia (ESCWA)**

**Report of the United Nations Workshop on Census Management for  
ESCWA Countries**

Sana'a – Republic of Yemen, 12 – 23 July 2003

**Hosted by the Central Statistical Organization of the Republic of Yemen**

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## **Part I**

### **A. Introduction**

1. The United Nations *Workshop on Census Management for ESCWA Countries* was co-organized by the United Nations Statistics Division (UNSD) and the Economic and Social Commission for Western Asia (ESCWA) and hosted by the Central Statistical Organization (CSO) of the Republic of Yemen. The workshop was conducted during the period 12 – 23 July 2003 and had the following objectives:

- To train participants on census management to successfully conduct population censuses as part of statistical capacity building in the ESCWA region; and
- To exchange experience among countries that had already conducted their censuses and countries that are in the process of planning and conducting their population and housing censuses.

Training was based on the United Nations *Handbook on Census Management for Population and Housing Censuses*.<sup>1</sup>

2. The workshop was funded by the project on Strengthening Statistical Capacity in ESCWA, and was attended by 20 participants from ESCWA Countries and Afghanistan: Afghanistan (3), Iraq (2), Jordan (one), Oman (4), Palestine (2), Qatar (2) Syria (one), and Yemen (5) and there were 20 observers from the Central Statistical Organization of the Republic of Yemen. The Central Statistical Organization observers attended the workshop sessions on topics relevant to their work in organization. The list of participants including the resource persons is attached as annex 1 to this report.

### **B. Opening and closing remarks**

3. His Excellency Mr. Abdel-Gadier Bajamal, the Prime Minister of the Republic of Yemen, opened the Workshop. He spoke about the history of censuses in Yemen and underscored the importance of sound methodology for collecting good quality and relevant data for socio-economic policy formulation and planning. The Prime Minister emphasized the need to adopt international statistical census methods and standards and the importance of sharing country experiences in census management. He also talked about the role of good technical management in ensuring good quality statistical work.

4. The Deputy Prime Minister and Minister of Planning and International Cooperation, Mr. Ahmed Mohamed Soufan talked about the benefits of the workshop, including its utility to future censuses in the participating countries as well as the opportunity for these countries to share experiences in this field.

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<sup>1</sup> *Handbook on Census Management for Population and Housing Censuses*, United Nations publication, Sales No. E.00.XVII.15 Rev.1

5. Mr. Jeremiah Banda, Chief of the Social and Housing Statistics section in the Demographic and Social Statistics Branch of the United Nations Statistics Division briefed the meeting about the United Nations development account project for ESCWA countries as part of statistical capacity building. He pointed out that the workshop on census management was one of several components of activities of the development accounts project, which was designed to assist ESCWA countries in statistical capacity building. He expressed his gratitude to the Central Statistical Organization of the Republic of Yemen for hosting the workshop and spoke about the statistical significance of censuses, stressing the importance of collecting accurate, timely and reliable data.

6. Mr. Ahmed Hussein, Chief of the Social Statistics Section and representative of ESCWA, also spoke about the role of ESCWA in the region and the cooperation and coordination of efforts between UNSD and ESCWA in capacity building in the field of statistics including census operations. He added that he considered the census to be by far the most important statistical endeavour and called on the countries in the region to share their experiences. He further stressed the importance of censuses for providing the necessary data for planning and policy development and for monitoring the millennium development goals.

7. During the closing session, Dr. Amin Mohie Al-Din, Chairman of Central Statistical Organization of Yemen highly praised the workshop as a means of enabling the participating countries to follow accurate statistical methods and avoid the problems of past censuses.

8. The representatives of UNSD and ESCWA expressed willingness and readiness of their respective offices to be consulted by the governments in the region to ensure the success of future censuses.

### **C. Structure of the workshop**

9. The structure of the workshop included formal presentations by resource persons, classroom exercises and working group sessions where participants discussed an assigned topic following a set format. The working groups reported back in plenary sessions. A set of conclusions was produced at the end of the workshop. The conclusions of the workshop are given in section E of this report. The Agenda (work programme) that also includes the working group sessions is presented in Annex 2 of this report.

### **D. Topics covered in the workshop**

10. The following topics were covered in the workshop:
1. Overview of census management
  2. Census planning
  3. Management structure
  4. Quality assurance
  5. Use of sampling
  6. Data processing

7. Establishing the basis of enumeration
8. Structure of the work staff
9. Form design and testing
10. Instruction manuals
11. Field staff recruitment and remuneration
12. Field staff training
13. Distribution and return of materials
14. Monitoring field operations
15. Publicity campaign
16. Census products
17. Quality assurance for field operations
18. Evaluation
19. Replicability of the workshop at national level.

## **Part II**

### **Overview of census management (Chapter I)**

11. This presentation focused on the importance of the relevance to the census users. A census should produce statistics that are relevant to data users and that every action in a census must be directed towards producing relevant output that meets the needs of users. In particular, the presentation covered the following items: Relevance to user needs, public relations to reinforce relevance to the general public, relevance to overall national strategies and relevance to other elements of national statistical systems.

12. Operational Planning is a necessary pre-requisite to ensure success of the census as it helps to determine both the human and financial resource needs for the census operations. It has many components and requires individuals with a wide range of experience. In order to be useful an operational plan requires input from all managers involved in the census. Planning is required because a census is a complex and statistically important exercise. It is also a very detailed, extensive and expensive undertaking.

13. The operational plan must identify the functions or components of a census, including its management structure and as well as the different phases of the operation. The plan covers all the phases associated with census taking such as designing and testing of the questionnaires, mapping, the data collection phase, data processing, analysis and dissemination, quality assurance, and budgeting.

14. In the operational plan, activities required to complete each of the census phases are identified and responsibility is assigned for completing these activities. For instance, the following activities may be identified for the planning phase to determine the content of the questionnaire.

- (a) Determining data needs
- (b) Development of questions to ask
- (c) Questionnaire design

- (d) Choosing concepts and definitions to be used
15. At the data collection phase, the following activities may be identified:
- (a) Delivery of questionnaires to supervisors
  - (a) Development of a field organization and structure
  - (b) Recruitment of enumerators
  - (c) Development of training manuals
  - (d) Development of procedures manuals
  - (e) Establishment of a pay system
  - (f) Development of a management information system
16. A census operational plan also includes determining human resource needs for the various activities. People of different expertise are needed for the various census phases, including demographers, statisticians/methodologists, geographers/cartographers, economists, computer system developers, managers, logistics experts, trainers, writers, and planners.

## **Census Planning (Chapter I)**

17. The presentations covered the following topics: Specifying the role of the census, and the role of Government and setting goals). The presentation covered the role of the census in the national statistical setting. In particular, it highlighted the role the census as being part of the overall statistical programme of the country. The role of other methods of data collection that provide population data, such as sample surveys, population registers and other administrative records were also discussed. Moreover, their limitations as sources of population data were also stated.
18. The government in any country has a vital role in conducting a population and housing census. There are three major areas where the government and its administration will need to be considered in planning a census. These are: (i) providing a legal framework for the conduct of the census, (ii) providing funding for the census and (iii) providing logistical support for census activities.
19. The presentation also included a discussion on setting census goals. In summary, setting goals for the census operation is important, because (i) goals assist on decision making for ongoing management, (ii) help the staff to make decisions, and (iii) make the staff more responsible and motivated. The goals of the census should be based on the needs of stakeholders (internal and external). The goals of the census generally revolve around the following:
- (a) Topics to be collected
  - (b) Confidentiality
  - (c) Timeliness of data release
  - (d) Data quality
  - (e) Nature of the output
  - (f) Trade offs between what topics can be collected and costs
  - (g) Total cost of the census

20. Census plans need to be monitored and appropriate adjustments made when necessary. Monitoring and control of census activities requires the following:

- (a) Steering committee composed of senior members of stakeholder government departments. This committee is responsible for resolving issues beyond the scope of the project team.
- (b) Census project team - a multi-disciplinary group of individuals who have individual functional responsibilities and a collective responsibility for project completion. The project team is made up of project managers from each functional area and meets regularly to review progress of each project manager's area of responsibility and resolve problems when they arise.
- (c) An operational plan - Gantt charts may be used to graphically portray all tasks in the project plan and to show progress relative to plans.

21. In a Gantt chart:

- (a) Each task has a name, duration, start, finish and timescale
- (b) Horizontal bars represent duration of tasks relative to each other
- (c) Dependencies and milestones can be included
- (d) Separate Gantt charts can be prepared for each sub-task and all activities to be completed
- (e) Automated systems are easy to use and speed up the planning process

22. Risk management is essential to the success of any census operation. Risks are unexpected events that could occur and in some way have a negative impact on the success of the census. Risks with high chances of occurring should be anticipated by developing a full detailed plan in conjunction with the census plan on the assumption that the risk will take place. The success and/or failure of the census may depend on the successful implementation of the plans designed to avoid or minimise risks when they occur.

23. Setting the census budget is necessary to enable planning for the different components of the census to go forward. The total budget for census operations should be established early in the census cycle and should cover all known activities. This is important because the census is highly cyclical, with resource requirements peaking in the enumeration and data processing phases.

24. In developing a census budget:
- (a) Sufficient resources must be allocated to each of the different phases
  - (b) The resource needs of the dissemination phase must be realistically assessed and quarantined from the impacts of other census operations.
25. There are three ways of estimating budgets:
- (a) Based on previous census **allocations** plus adjustments for:
    - inflation for increased costs
    - efficiency gains (e.g., implementation of new technology)
    - policy changes
    - population changes
  - (b) Based on previous census **expenditures** plus adjustments for inflation, efficiency gains and population changes, and
  - (c) Using costing models, with no reference to any previous budget.
26. When allocating funds for a census budget, attention should be paid to:
- (a) Inter-relatedness of census activities
  - (b) Unforeseen circumstances.
27. It is necessary to monitor expenditure against funding for the current and future years for all projects. While budgets may be compiled on a yearly basis, they must be monitored on a quarterly or even a monthly basis. Also, forward estimates should be prepared and reviewed on a yearly basis for all years of the census cycle.

## **Management structure (Chapter I)**

28. In the majority of countries, the national statistical agency is responsible for conducting population and housing censuses. In such cases, the management structures that can be put in place for the census will partly benefit from the established management structure in the statistical agency.
29. In many countries, censuses of the population are taken once every 10 years. This implies that in most cases, the structure that supported the previous census disintegrates or is abandoned by the time of the next census. Invariably, this is accompanied by loss of most of the institutional memory about details of the census programme activities. It is against this background that there is a need to establish good and viable management structures to oversee the planning and conduct of the census, including the processing and dissemination of census results.
30. In the early stages of the census operation, the principal activity will be identifying possible options for the various aspects of taking the census and during this stage, the team structure will be based around a small group of experienced and relatively senior staff. The team should be managed by a person experienced in addressing strategic issues and with experience in census taking.



31. A generic management structure for a census agency may comprise of the following levels:
- (a) Census agency executive officer responsible for the census within the executive structure of the statistical agency
  - (b) Deputy executive officers who report directly to the executive officer and may be responsible for several of the phases in the census cycle
  - (c) Project managers, each in charge of a project team responsible for a phase of the census
  - (d) Project teams who are responsible for completion of project tasks to the agreed timetable, agreed and accepted levels of quality, and peer group reviews of project outputs
  - (e) Project board which is a high level group comprising representatives of major stakeholders in the census programme, and other areas within the statistical agency. The project board provides advice to the executive officer on strategic directions and issues
  - (f) Advisory committees. These committees should be utilized in the planning, and not operational, phases of the census to provide technical advice and expertise.
32. During the field operations phase, a key element of the management structure is that it will inevitably be geographically dispersed. This is necessary in order to benefit from the local knowledge required to ensure a high quality enumeration and to ensure ready access to managerial advice and oversight to enumerators. The management structure for field operations may comprise of:
- (a) Regional managers
  - (b) Deputy regional managers
  - (c) Supervisors
  - (d) Enumerators.
33. At the data processing stage, structures can be put in place at each processing centre. If the processing is conducted at a number of decentralized sites, an additional management layer will be needed. In this case there is a need for overall national coordination of operational and quality assurance aspects of the processing task.
34. At the dissemination phase, the overriding requirements are that there should be:
- (a) A great deal of attention paid to coordination with the enumeration and processing systems
  - (b) Due attention given to the use of standard classifications across the entire range of outputs, and
  - (c) A process that is based on a clearly spelt out set of user objectives.

## **Quality Assurance (Chapter I)**

35. In the census context there are four attributes of quality assurance namely relevance, cost, timeliness and data quality (accuracy). The role of census managers in establishing quality of census data is very important. Quality improvement can be applied to the census through the quality circle. The quality circle can be applied to topic selection, form design and testing, field operations, data

processing, data dissemination and evaluation. Census data evaluation of the current census cycle should be the first step in the following census cycle.

## **Use of sampling in censuses (Chapter I)**

36. The session explored the use of sampling techniques at various stages of census activities, thus during pre-tests and pilot tests, data collection, data editing and tabulation and evaluation. Sampling is used, for example, during the data collection stage to obtain data on relatively complex items and to somewhat reduce costs. It is also used in quality control operations especially during editing and coding. Sampling can be used after field operations to produce preliminary estimates before the final tabulations are prepared, and also in the post-enumeration survey.

37. The census also establishes a sampling frame for subsequent sample surveys or survey programmes.

## **Data processing (Chapter IV)**

38. The session on data processing covered the following topics:

- (a) Processing strategies
- (b) Location of processing centres
- (c) Workforce structure
- (d) Processing operations

39. The strategic plans for the data processing phase should be established early enough during the census cycle. Decisions pertaining to the processing system to be used and technologies to be adopted are of paramount importance. Early and timely decisions allow for testing and implementation of the data processing system. It is advisable to choose technologies that will be effective and efficient in the processing of census data.

## **Establishing the basis of enumeration (Chapter II)**

40. Establishing the basis of enumeration provides a framework for proceeding with more detailed planning for field operations. Key goals related to enumeration include the following: (i) full coverage of the population, (ii) maintaining confidentiality of census data, (iii) enhancing census publicity, (iv) minimizing non-compliance, (v) ensuring cost effectiveness in all census activities, (vi) recruitment and training of high quality field staff, (vii) ensuring that there is accountability for all census materials, (viii) availability of all materials (e.g. maps) necessary for enumeration, (ix) involvement and cooperation of local leaders, (x) use of consistent procedures across the country, and (xi) making sure that particular and special sub-groups of the population are enumerated.

41. Other issues considered under the basis of enumeration requiring attention and in some cases decisions include: (i) identification and involvement of key stakeholders, (ii) type of enumeration,

i.e., whether it will be de facto, de jure or both, (iii) method of enumeration, (iv) timing of enumeration, (v) census reference time, (vi) duration of enumeration, (vii) adhering to critical dates such as census dates, and (viii) quality assurance during enumeration.

## **Structure of the work force (Chapter II)**

43. When determining the structure of the workforce to support the enumeration phase we can involve three of four layers of hierarchical management:

- (a) Regional manager;
- (b) Deputy regional manager;
- (c) Supervisor (or crew leader); and
- (d) Enumerator

44. The roles and responsibilities at each level will vary and will depend on the basis of enumeration. The roles and responsibilities of each level must be clearly defined in various instruction manuals and reinforced, by census trainers, during training.

45. The work of regional managers will involve public communication activities and liaison with targeted government and community groups. Responsibilities include promoting census awareness and resolving major logistical problems such as shortage of transport for transporting materials. The role is more managerial and public relations rather than the supervision of fieldwork. He/she should communicate regularly with the head census office.

46. At the very start of enumeration, supervisors should carry out in the field, on-the-job training of enumerators under their supervision. The supervisor goes with the enumerator as he/she interviews respondents, instructing and advising the latter on best practices of field interviewing. Supervisors should also regularly check the work of enumerators to ensure quality. Quality assurance tasks are critical and therefore sufficient time must be allowed both during enumeration and when the forms are being dispatched to the processing centres.

47. The work of the enumerator will usually involve:

- (a) Contact with respondents during interviewing
- (b) Clerical work at home and in the field
- (c) Travel to and from, and around the enumeration area

48. The period of greatest demand on the time of field staff is the actual enumeration period (e.g. several weeks on either side of census days), when all staff is engaged in operational tasks relevant to their own level.

49. The supervisor/enumerator ratio should be relatively small such that supervisors are able to effectively supervise their team of enumerators. The supervisor/enumerator ratio, however, cannot be determined by a mathematical formula and therefore will involve some level of qualitative rather than objective judgment. However, as a rule of thumb, a 1:5 ratio has been used as a starting point and then varied accordingly.

## **Form Design and Testing and Census Testing (Chapter II)**

50. The presentation covered the following topics: issues to consider in form design, form testing, census tests and methods of testing. In designing census forms, the following issues need to be considered: (i) Respondent burden, (ii) format and question wording, (iii) layout and design of response area, and (iv) use of long and short census questionnaires (combination). In form testing, the principles of principles of good form development were discussed. These include the following:

- (a) Always evaluate the performance of a form before changes are made
- (b) If necessary, change the form to improve its performance, and
- (c) Always evaluate the form after changes are made to find out if its performance has improved and procedures for evaluating census forms, which include analysis of errors, cognitive testing and analysis the quality and level of detail given in response to particular questions on the census form.

51. Census testing is an important part of census activities. It should be comprehensive including testing of questionnaires, manuals, enumeration procedures and processing procedures. Testing can be done for every stage of census activities, including questionnaire design options, data collection procedures, enumeration management, and the later stages including data processing and dissemination strategies. The testing programme should include the pilot test. The pilot test is the final test at which the enumeration, processing and dissemination systems, and the interface between them, are all given a final test to resolve any outstanding problems. The pilot test also provides an opportunity to revise costing estimates. To have reliable results of testing, it is important to design them to reflect as much as of the final census environment. The expenses pertaining to the test should be part and parcel of the census budget. The exercise should not be treated as ad hoc.

## **Instruction Manuals (Chapter II)**

52. Manuals serve the following purposes:

- (a) Reference guide to responsibilities and tasks of field workers
- (b) Instructions to handle most situations in the field, such as non response
- (c) Ensure all enumerators use the same procedures
- (d) Focus on issues
- (e) Used for training enumerators
- (f) Provide timetables

53. Instruction manuals include:

- (a) Enumerator's manual
- (b) Supervisor's manual
- (c) Regional manager's manual

54. The enumerator's manual contains the following:

- (a) An introduction, that includes information about the statistical agency, the census, the census organization, how to use the manual and operational arrangements.

- (b) Enumerator responsibilities, including duties, conduct/behaviour, identification, safety, confidentiality of information, lost material, access to dwellings, handling of materials, completing questionnaires and checking questionnaires.
  - (c) Activities before training, such as collecting and receiving of materials from supervisors.
  - (d) Other topics covered in the enumerator's manual include the following: training, pre-listing, preparation for enumeration, conducting the interview, and review of completed work.
55. The supervisor's manual contains:
- (a) An introduction
  - (b) Supervisor's responsibilities
  - (c) Administration and recruitment
  - (d) Handling of materials and workload review
  - (e) Training of enumerators
  - (f) Pre-listing
  - (g) Activities during data collection
  - (h) Activities after data collection
  - (i) Packing and returning of materials
56. The regional manager's manual contains the following:
- (a) An introduction
  - (b) Responsibilities
  - (c) Safety issues
  - (d) Mapping
  - (e) Public communication
  - (f) Special enumeration strategies
  - (g) Administrative issues including recruitment, hiring and payment of field staff
  - (h) Training
  - (i) How to deal with refusals

### **Field staff recruitment and remuneration (Chapter III)**

57. The principal objective of the recruitment exercise should be to recruit staff that is capable of understanding the duties of the various positions and in sufficient numbers for all geographic areas. The quality and objectivity of the recruitment campaign will directly affect the quality of the data to be collected and, therefore, the success of the census. Select qualified staff for the job at hand.

58. The amount of remuneration paid to field staff has a direct effect on the recruitment campaign. Staff need to be assured that payment is fair and equitable in comparison with market rates for broadly similar tasks in other jobs and is compatible with the amount, and difficulty, of the work they will undertake.

59. Where existing staff from other government ministries are used, they should be paid per diem. These payments should also be fair and equitable to allow the staff to perform their duties to the best of their abilities.

### **Field staff Training (Chapter III)**

60. Training of field staff is a very important activity in the census programme. The aim is to impart knowledge and practices that are uniform to facilitate collection of consistent and reliable data. Enumerators, for example, should be able to collect from respondents consistent data on similar items.

61. Training is necessary because a high proportion of staff from all levels of the field workforce is usually short-term temporary staff. They generally have limited experience or training in statistical collection activities. The aim is to provide them with sufficient training for them to understand the following:

- (a) The importance of their duties
- (b) How their efforts fit into overall census goals
- (c) Issues related to confidentiality
- (d) The way they are expected to undertake enumeration duties.

62. Providing sufficient training to field staff is a significant step towards achieving a high level of quality in the overall census outcome. Training also achieves a positive relationship between the field staff and the census agency, with the potential to increase the proportion of staff who come forward to undertake census duties in the future.

63. There are two methods of training:

- (a) The cascading approach where each level in the staffing hierarchy trains the level immediately below it, and
- (b) Use of master trainers who are assigned to train staff in particular geographical regions.

64. It is usually the responsibility of the census agency staff to develop training materials. Care is needed in the development of the material to ensure uniform standards and application. In preparing training sessions, the requirements of each group of trainees should be considered.

### **Distribution and return of materials (Chapter III)**

65. Regardless of the type of census, there will be a need for materials to be supplied to field staff and returned. These include:

- (a) Enumerator material
- (b) Supervisor material
- (c) Regional manager and/or deputy regional manager material

- (d) Other material
66. The distribution and receipt of materials includes the following tasks:
- (a) Receipt of material from manufacturers
  - (a) Bulk storage during the packaging operation
  - (c) Packing
  - (d) Consignment preparation and delivery to enumeration staff
  - (e) Bulk transport outward
  - (f) Pick-up from enumeration staff
  - (g) Bulk transport inward from the field to processing centres
67. Decisions must be made concerning how materials would be delivered, i.e., whether enumerators would be required to collect their work materials from a central depot or deliveries would be made to regional managers or to supervisors. These decisions are essential for establishing packing volumes for the materials to be transported.
68. Establishing the specifications for the packing and transport of materials is a major task in planning field operation and should begin approximately two years prior to the census date. Specifications of functions and requirements for the distribution and return of materials should be by phase: packing, dispatch and return.
69. There are two methods of supplying materials to supervisors and from them to enumerators: (a) bulk supply whereby supervisors are provided with items in bulk and they have to package them for the enumerators they are responsible for, and (b) pre-packing of materials before they are distributed to field staff.
70. In a mail-out/mail-back census the following should be taken into account in relation to the distribution and return of materials:
- (a) A complete and accurate list of addresses for the entire country
  - (b) A postal service infrastructure throughout the entire country
  - (c) Cost

### **Monitoring field operations (Chapter III)**

71. The presentation covered issues to be considered when monitoring field operations. The key to successful monitoring of field operations is an efficient and relevant management information system (MIS). The purpose of the MIS is to improve the ability of managers to:
- (a) Execute the field operation according to schedule
  - (b) Respond to public relations issues
  - (c) Pay field staff correctly and timely
  - (d) Manage the budget
  - (e) Evaluate the effectiveness and efficiency of the operation.
72. Planning a management information system for the field operation should comprise the following steps:

- (a) List all potential useful items of information
- (b) Consider how and when each item is collected
- (c) Consider how each item will be used and by whom
- (d) Consider the impact of the burden of reporting the information
- (e) Review the value and usefulness of each item
- (f) Incorporate the final list into relevant work plans

73. Decisions have to be made regarding the type of information to be included in the management information system. This includes the following:

- (a) Start and finish dates for particular activities
- (b) Piece rates or amounts, such as number of dwellings interviewed or enumerated
- (c) Volume such as percentage of enumeration completed
- (d) Status, such as incomplete, started or finished
- (e) Type (and number) of calls to the telephone inquiry service (including number of certain types of calls)

74. Information on the following may be collected:

- (a) Budget
- (b) Mapping and household listing
- (c) Logistics
- (d) Recruitment
- (e) Training
- (f) Operation
- (g) Public relations and inquiry services

### **Publicity Campaign (Chapter III)**

75. The objectives of a publicity campaign are to improve:

- (a) Public understanding of the purpose of the census
- (b) Public cooperation
- (c) Response rates
- (d) Data quality

76. To achieve these objectives, planning for the publicity campaign should start early in the overall census planning, and have sufficient funds allocated to it. It should also have a publicity strategy.

77. Publicity messages should be closely allied with the data collection process and professional communications personnel should be used to plan and implement a census publicity campaign to ensure professionalism and achievement of desired objectives.

78. When developing a publicity strategy, the following issues should be addressed:

- (a) Background information about the population, including attitudes towards the census;



- (b) A situation analysis identifying issues that need to be addressed, such as the opinions of stakeholders, potential use of census information for non-statistical or inappropriate purposes, and concerns about potential government intrusion into private affairs;
- (c) A clear statement of the objectives of the publicity campaign such as maximizing awareness of the census dates and encouraging respondents to cooperate;
- (d) Definition of target audiences, i.e., segments of audiences or communities that require particular attention;
- (e) Statement of messages to be communicated; and
- (f) The publicity strategies that will be implemented, such as the building of awareness through effective media advertising and an active media program of information dissemination.

80. A publicity strategy can be divided into different stages and should reach a peak just before census enumeration. The implementation of a publicity strategy depends on a country's cultural, social, and administrative circumstance, as well as the mass media, and should be directed at (a) census agency staff, (b) field operations workforce, (c) general external audiences, and (d) other audiences, including people travelling on census night, the homeless, schools and overseas visitors.

81. It is necessary to have publicity support services to publicize the census and provide assistance to the public, and also to handle complaints or concerns by the public. Examples of support services include a census web page and a telephone-based inquiry service or Hotline providing standard answers.

82. It is important the publicity campaign be continuously evaluated from the beginning of the campaign leading up to an overall evaluation.

## **Census Products (Chapter V)**

83. Dissemination of census products is an essential part of the census programme, which deserves to be properly planned and managed. At an early stage countries have to choose between the wholesale and retail approach to dissemination. (The former entails the production of standard tabulations, of a wide range, to users of the census data. The later aims at providing a full range of services to users including non-standard information).

84. The dissemination strategy should also address the following:
- (a) Pricing of census products
  - (b) Timeliness of release of data compared to accuracy of data
  - (c) Stages of data release
  - (d) General or customized release
  - (e) Integration of census results with other products of the census agency.

## Quality Assurance for Field Operations (Chapter III)

85. The purpose of quality assurance is to:
- Identify “problem enumerators”
  - Allow for evaluation after the enumeration
  - Improve on future censuses
86. By adopting quality assurance, and collecting and analysing qualitative information, an important aspect of the overall quality of the census can be substantiated.
87. Quality assurance is performed by supervisors on the work of enumerators. Supervisors play a critical role in assessing and reviewing the performance of enumerators and ultimately influencing the quality of the census. The supervisor is also an important link in terms of evaluating the procedures, documentation and training for census tests. The scope of quality assurance in field operations is more restricted where the mail service is used for delivery and return of census forms.
88. Supervisors need to be trained in the procedures required for conducting quality assurance on enumerator’s work and to have a thorough knowledge of the enumeration procedures. Performing quality assurance on the work of enumerators can be done in five ways:
- Observing interviews during enumeration
  - Checking households already enumerated
  - Checking coverage of the enumeration area
  - Checking completed census forms
  - Through a complete observation report
89. Assessment of the quality of an enumerator’s work may be done through re-interviews, which should be done early in the enumeration period so that poor performance can be improved. Re-interviews may involve:
- Visiting a sample of households (about 4 per enumerator)
  - Speaking to the respondent to assess:
    - the degree of “success” of the interview
    - any problems
90. Quality assurance may also be performed to assess the coverage of enumeration areas. This is done:
- To assess if all households in an enumeration area have been covered
  - To ensure that households from adjoining enumeration areas have not been included
  - Using the map and household list to determine if enumerators have found new or “hidden” dwellings
  - Visual signs (stickers, chalk marks, etc.) may be used to show households enumerated
91. Quality of completed census forms involves the following:
- Reviewing sample questionnaires in detail before they are sent to the processing

- centre
- (b) Ensuring that all fields to be completed by enumerators, have been completed
- (c) Ensuring that all census forms are included, and they have been fully completed, including summary information
- (d) Re-verifying weak enumerators

## **Evaluation (Chapter VI)**

92. A census is subject to errors regardless of all the concerted efforts a census agency may make to ensure accuracy. Such efforts minimize but do not eliminate all the errors. Overall evaluation of a data collection operation includes evaluation of operations and of the results. In this connection the evaluation of operations may include every aspect of the census process: planning, user consultations, data collection, archiving, dissemination and analysis. Evaluation of results involves examining the information produced for their relevance, timeliness, and errors. With regard to census results three methods of evaluation are commonly used, namely: demographic analysis, use of other data sources, and post enumeration surveys (PES). Evaluation results inform users of the quality of the current census results and provides benchmarks against which the quality of future census can be measured.

93. The purpose of evaluation of data accuracy is to:
- (a) Inform users of the quality of the current census data
  - (b) Assist in future improvements, through:
    - improving processes
    - establishing performance benchmarks against which the quality of the data from future censuses can be measured

94. Errors in censuses could be classified into coverage errors and content errors. Evaluation of coverage is to establish the extent to which people have been missed or duplicated. Evaluation of accuracy involves assessing the reliability of the data.

## **Replicability of the workshop at national level**

95. This presentation addressed such issues as the suitability of the workshop materials for national level workshop; who the trainers are, and the levels of staff to be trained. In particular, it addressed the following topics:

- (a) Suitability of the materials in the United Nations Handbook on Census Management for Population and Housing Censuses
- (b) Who the trainers should be
- (c) Levels of staff to be trained using the Handbook
- (d) Modifications to training needed for lower levels in the regions of the country
- (e) How to organize the training sessions

## **Part III**

## **E. Conclusions of the workshop**

96. The following are the workshop conclusions, which are presented by topic.

### **Overview of Census Management**

- (a) The census should produce statistics that are relevant to the data needs and policy issues facing the country
- (b) All stakeholders should be consulted
- (c) To be successful, an operational plan must be developed for all components of a census
- (d) Where required, training in the development of an operational plan should be provided

### **Census Planning**

- (a) The census is an integral part of the country's statistical master plan
- (b) Questions should be clear and limited to questions that are appropriate to census taking and complex questions should be collected using sample surveys
- (c) The government must provide a legal framework, funding and logistical support
- (d) A Gantt chart should be developed for each component of the operational plan
- (e) Total budget for a census operation should be established early in the planning process taking into account cyclical nature of census and consequences for resource requirements
- (f) Governments should allocate and release money for census activities in a timely manner to allow for smooth preparations and implementation of census operation
- (g) Budget allocations by item differ by country
- (h) Special attention should be paid to budgeting for and allocating adequate resources for data dissemination and evaluation of the census

### **Management Structure**

- (a) Each country planning to conduct a census must constitute a management structure that would effectively plan and conduct a successful census
- (b) The basic components of a higher national advisory body consisting of major stakeholders are necessary to provide strategic directions and help in resource mobilization. There must also be specialist advisory committees at the statistical agency level; there must be a census Director; project managers and teams
- (c) Consultants, if engaged in census activities, should sign detailed contracts clearly spelling out schedules of measurable milestones and deliverables
- (d) Consultants should assist in capacity building within the census/statistical agency

### **Quality Assurance**

- (a) Managers have a vital role in assuring quality
- (b) Quality improvement applies to the entire census cycle including dissemination and evaluation
- (c) Managers must balance the competing issues of cost, quality and timeliness

### **Use of Sampling**

- (a) If there are relatively few questions in the questionnaire there is no need to use sampling at the data collection stage
- (b) In using sampling methods it imperative to design a good sample so that inferences can be generalised on the population
- (c) If a country decides to use sampling during data collection the long form should be applied on a sample basis while the short form should be completed for all respondents in the population
- (d) Well-designed samples should be used if the country decides to evaluate census coverage and content through a post enumeration survey (PES)

### **Data Processing**

- (a) Managers need to define their processing strategies early in the census cycle – about 3 years before the census taking
- (b) Participants recommend conducting workshops to share experiences in data processing
- (c) Networks and Internet are efficient ways to consolidate captured data from processing centres to the CSO
- (d) Careful determination of processing strategies and training will alleviate difficulties with recruitment of qualified computing professionals

### **Establishing the Basis of Enumeration**

- (a) Either de jure, de facto or a combination of both should be used depending on national circumstances and method(s) used should be clearly spelled out
- (b) The interviewer method has been adopted in most ESCWA member countries
- (c) Timing of the census can be influenced by seasonal conditions
- (d) The census reference time is usually midnight at beginning of designated census day
- (e) The duration of the census enumeration will be determined by the magnitude of the census operation
- (f) Performance indicators should be established before the census to enable an assessment of the quality of enumeration

### **Structure of the Work Staff**

- (a) The roles and responsibilities of each level must be clearly defined in various instruction manuals and they should be reinforced during training
- (b) The best census time determined by practice for ESCWA countries was the last quarter of the year
- (c) A 1:5 ratio between supervisor and enumerator can be used as a starting point and then varied accordingly

### **Form Design and Form Testing**

In designing census forms, the following issues need to be considered:

- (a) Respondent burden
- (b) Format and layout of the questionnaire
- (c) Question wording

- (d) Use of long and short census questionnaires (combination).

In form testing, the principles of good form development include the following:

- (a) Always evaluate the performance of a form before changes are made
- (b) If necessary, change the form to improve its performance
- (c) Always evaluate the form after changes are made to find out if its performance has improved

Procedures for evaluating census forms should include:

- (a) Analysis of errors
- (b) Cognitive testing
- (c) Analysis of the quality and level of detail given in response to particular questions on the form

### **Census Testing**

- (a) Countries conducting censuses must establish a testing programme that should effectively be carried out during all phases of the census
- (b) It should be comprehensive and by stages
- (c) A pilot test that includes all phases of the census should be part of the programme to resolve any outstanding problems and allow for revision of the census budget

### **Instruction Manuals**

- (a) The key issue is to ensure that all chapters or parts of all manuals are included, but each country can decide where it is best to place each chapter
- (b) Separate manuals for each level of staff should be produced

### **Field staff Recruitment and Remuneration**

- (a) Field staff needs to be assured that payments will be commensurate with the amount and difficulty of the work they will undertake
- (b) The payment schedule also needs to fulfil their expectations and requirements
- (c) The total number of enumeration areas in a country can be used to estimate the total number of enumerators required

### **Field Staff Training**

Training of field staff at various levels should use standard training manuals to ensure consistency

### **Distribution and Return of Materials**

- (a) It is important to acquire enough quantities of materials especially those needed during the enumeration period to avoid interruption of exercise
- (b) Unused census forms be returned together with filled in form for control purposes
- (c) Decision on use of booklets versus single forms should be based on considerations for data entry and other issues including cost and management of materials by field personnel
- (d) Plans for distribution and return of materials should be part of overall census planning and should begin at least 2 years before the census

**Monitoring Field Operations**

- (a) It is a practice in all censuses to use registers for monitoring enumeration in the fields
- (b) Use of project management software will more effectively automate monitoring activities
- (c) Countries should establish operation rooms for monitoring field operation

**Publicity Campaign**

- (a) Planning a publicity campaign should be part of overall census plan
- (b) It is important that a census publicity campaign be based on research
- (c) The publicity campaign should address issues of data confidentiality and benefits to the public

### **Census Products**

- (a) Census products should be appealing to users in terms of quality, reliability, relevance and user-friendly
- (b) If data sets are at individual levels or from small geographic areas, efforts should be made to remove identifiers
- (c) Stakeholders should be involved in planning the dissemination strategy

### **Quality Assurance for field Operations**

- (a) A manager should be appointed to be responsible to design strategies, guidelines and the principles of quality assurance of the census
- (b) Each project manager is responsible for the quality control of all activities in his/her project
- (c) Management information must be produced from each element of the census in order that measures of quality can be published along with the statistics

### **Evaluation**

- (a) It was agreed that censuses should be evaluated to indicate quality to users and to establish benchmarks for quality comparisons for future censuses
- (b) Use all the available data sources in evaluating the census, including data from previous censuses, vital registration systems and relevant household sample surveys
- (c) If a country opts to use the post enumeration survey (PES) for measuring either coverage and/or content error, the design should be based on probability sampling to facilitate making inferences on the population
- (d) PES should be as independent as possible from the census operations
- (e) With regard to details on evaluation issues participants were referred to the UNSD website of the 2000 Census Symposium for papers on PES and Demographic methods. The web address for the symposium is <http://unstats.un.org/unsd/demog/default.asp>. It was also concluded that the US Bureau of the Census is a good source of information on PES methodology - <http://www.census.gov/>.

## **Part IV**

### **F. Evaluation of the workshop**

97. At the end of the workshop, the participants evaluated the workshop in terms of its organization and substantive content. In terms of content, close to 70% of the participants thought that the workshop sessions were either very or extremely useful to their work. Furthermore, about 85% of the participants related the training materials as either very or extremely useful. Close to 92% of the participants also indicated that they learnt something new during the workshop. About 85% of the participants rated the clarity of the training materials as either very or extremely clear. Generally speaking, the participants stated that the organization of the workshop, including its duration was adequate. Overall, the workshop as a whole was highly rated, with all the participants stating that it was either very good or excellent.



## Annex 1

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**Annex 2**  
**Work Programme**

**Workshop on Census Management**  
**for ESCWA Countries**

**Sana'a, Yemen, 12 – 23 July 2003**

**Saturday, 12 July 2003**

*Chair: Yemen*

8:00 - 8:30 a.m.	<b>Registration of participants</b>	
8:30 – 9:30 a.m.	<b>Opening</b> <i>Formal opening by a senior official of the host country</i> <i>Remarks by UNDP Representative</i> <i>Remarks by UNSD Representative</i> <i>Remarks by ESCWA</i>	<i>(M. Karim)</i> <i>(J. Banda)</i> <i>(A. Hussein)</i>
10:00 - 10:30 a.m.	<b>Organizational matters</b> <i>Brief self-introduction by participants</i> <i>Administrative issues</i> <i>Adoption of work programme</i>	<i>(M. Mbogoni)</i>
10:30 – 11:00 a.m.	<b>Coffee Break</b>	
11:00 a.m. - 12:30 p.m.	<b>Overview of Census Management (E.1-3) (A.1-3)</b> <i>Relevance of the census</i> <i>Planning an operational plan for a census</i>	<i>(S. Suliman/ R. Baxter)</i>
12:30 - 1:00 p.m.	<b>Coffee Break</b>	
1:00 - 2:30 p.m.	<b>Working groups session - 1</b> <i>Points for Discussions: Relevance of census topics</i>	







**Tuesday, 15 July 2003**

*Chair: Oman*

- 8:00 - 9:00 a.m.      **Presentation for working groups session - 3**  
*Presentation by each group (10-15 minutes)*  
*Discussion*
- 9:00 – 9:45 a.m.      **Use of sampling**                      (E.36)(A.35)                      (J. Banda)
- 9:45 – 10:30 a.m.      **Data Processing**                      (E.121-133)(A.124-137)                      (P. Pham)  
*Processing Strategies*  
*Location of Processing Centers*  
*Workforce Structure*
- 10:30 –11:00 a.m.      **Coffee Break**
- 11:00a.m. - 12:30 p.m.      **Data Processing**                      (E.133-140)(A.137-143)                      (P. Pham)  
*Processing Operations*  
*Country presentations on data capture (Egypt and Oman)*
- 12:30 - 1:00 p.m.      **Coffee Break**
- 1:00 - 2:30 p.m.      **Working groups session – 4**  
*Points for discussion: Experiences in Estimation of Processing Time and Equipment in the Past and Plans for Future. Sharing Proven Methods for Estimation.*

**Wednesday, 16 July 2003**

*Chair: Qatar*

- 8:00 - 9:00 a.m.            **Presentation for working groups session - 4**  
*Presentation by each group (10-15 minutes)*  
*Discussion*
- 9:00 - 10:30 a.m.        **Establishing the basis of enumeration** (E.39-49)(A.38-49) (A. Hussein)  
*Key goals*  
*Type of enumeration*  
*Method of enumeration*  
*Timing of enumeration*  
*Duration of Enumeration*  
*Critical dates*  
*Performance indicators*
- 10:30 - 11:00 a.m.        **Coffee Break**
- 11:00 a.m.- 12:00 p.m.    **Structure of the work staff**            (E.49-52) (A. 49-52)            (A. Hussein)  
*Roles and responsibilities*  
*Time available*  
*Staffing Ratios*
- 12:00-12:30 p.m.        **Discussion**
- 12:30 - 1:00 p.m.        **Coffee Break**
- 1:00 - 2:30 p.m.        **Working groups Session - 5**  
*Point for discussion: Basis of enumeration*

**Saturday, 19 July 2003**

*Chair: Jordan*

8:00 - 9:00 p.m.

**Presentation for working groups session - 5**

*Presentation by each group (10-15 minutes)*  
*Discussion*

9:00 - 10:30 a.m.

**Form Design and Testing** (E.63-69) (A. 64-69) (S. Suliman)

*Issues to consider in form design*  
*Form design*  
*Form testing*  
*Census tests*  
*Methods of testing*

10:30 - 11:00 a.m.

**Coffee Break**

11:00 a.m. - 12:30 p.m.

**Instruction manuals** (E.69-74) (A.69-75) (R. Baxter)

*Enumerators' handbook*  
*Supervisors' handbook*  
*Regional managers' handbook*

12:30 - 1:00 p.m.

**Coffee Break**

1:00 - 2:30 p.m.

**Working groups session - 6**

*Points for discussion: Highlighting merits and demerits of various census forms*

**Sunday, 20 July 2003**

*Chair: Iraq*

- 8:00 - 9:00 a.m.      **Presentation for working groups session - 6**  
*Presentation by each group 10-15 minutes*  
*Discussion*
- 9:00 – 10:30 a.m.      **Field staff recruitment and remuneration** (E.90-97)(A.91-98) (A. Hussein)  
*Recruitment*  
*Remuneration*
- Field staff training** (E.97-98)(A 98-105)  
                                 (J. Banda)  
*Training programmes*  
*Trainers*  
*Developing training material*  
*Training sessions*
- 10:30 – 11:00 a.m.      **Coffee Break**
- 11:00 - 11:45 a.m.      **Distribution and return of materials** (E.103-109) (A. 105-111) (M. Mbogoni)  
*Inputs*  
*Material*  
*Specifications*  
*Estimating quantities*  
*Packing*  
*Census agency management role*  
*Mail out/mail-back census*
- 11:45 a.m. – 12:30 p.m.      **Monitoring field operations** (E. 109-112) (A. 111-114) (P. Pham)  
*Purpose of a Management Information System (MIS)*  
*Planning an MIS*  
*Type of Information to Include*  
*Sharing an MIS or its Components for Reuse*
- 12:30 - 1:00 p.m.      **Coffee Break**
- 1:00 - 2:30 p.m.      **Working groups Session -7**  
*Points for discussion:*  
*Common Features of Last Census MIS'es*  
*Core and Desirable Features of MIS'es for Future Censuses*



**Tuesday, 22 July 2003**

*Chair: Palestine*

- 8:00 – 9:00 a.m.      **Evaluation**      *(E.179-182)(A183-187) (J. Banda)*  
*Basic measurements of overall quality*  
*Detailed analysis*  
*Changes to census processes*  
*Communicating quality issues*
- 9:00 – 10:30 a.m.      **Replicability of the workshop at national level** *(S. Suliman/Oman)*
- 10:30 – 11:00 a.m.      **Coffee Break**
- 11:00 - 12:30 a.m.      **Working groups session - 8**  
*Points for discussion: How to replicate the workshop at national level*
- 12:30 - 1:00 p.m.      **Coffee Break**
- 1:00 - 2:30 p.m.      **Presentation for working groups session - 8**  
*Presentation by each group (10-15 minutes)*  
*Discussion*

**Wednesday, 23 July 2003**

*Chair: United Nations*

9:00 - 10:30 a.m	<b>Review of workshop</b>
10:30 – 11:00 a.m.	<b>Coffee Break</b>
11:00 - 11:30 a.m.	<b>Closing Session</b>