United Nations Statistics Division

ESA/STAT/AC.93/L.4

Report of United Nations Expert Group Meeting to Review the Draft Handbook on Designing of Household Sample Surveys,

New York, 3 - 5 December 2003

Organised by the Demographic and Social Statistics Branch

A.   INTRODUCTION

1.   The United Nations Statistics Division (UNSD) held the Expert Group Meeting to Review the Draft Handbook on Designing of Household Sample Surveys between 3 and 5 December 2003 in New York, U.S.A. Seven experts participated in the meeting, as well as the four authors who had written the various draft chapters. The complete list of participants is given in Annex 3.

2.   The purpose of this meeting was to review the draft handbook and gather comments and substantive suggestions aimed at improving the draft. Experts were encouraged to offer their inputs so that, once finalized, the handbook can be published and made available as a comprehensive, practical, technically sound manual for statisticians and other experts involved in survey research.

B.   STRUCTURE AND ORGANIZATION

3.   The following topics were covered by the meeting:

  a.   Main sources of socio-demographic statistics (ESA/STAT/AC.93/1)
  b.   Sampling strategies (ESA/STAT/AC.93/2)
  c.   Sampling frames and master samples (ESA/STAT/AC.93/3, subsection A)
  d.   Sampling frames and master samples (ESA/STAT/AC.93/3, subsection B)
  e.   Documentation and evaluation of sample designs (ESA/STAT/AC.93/4)
  f.   Construction and use of sample weights (ESA/STAT/AC.93/5)
  g.   Estimation of sampling errors for complex survey data (ESA/STAT/AC.93/6)
  h.   Nonsampling errors in surveys (ESA/STAT/AC.93/7)
  i.   Data processing, analysis, and dissemination (ESA/STAT/AC.93/8)
  j.   Annexes (ESA/STAT/AC.93/9)
  k.   Overall structure of the handbook and conclusions

4.   The sessions were organized to follow the above mentioned structure as indicated in Annex 2. Each chapter was reviewed by one or two discussants and written comments were provided.

All experts were then asked to provide comments and feedback. The participants were strongly encouraged to supply concrete examples which might be included in the draft handbook.

C.   OPENING REMARKS

5.   Mr. Willem De Vries, Officer-in-Charge of the United Nations Statistics Division opened the Expert Group Meeting. He noted that household surveys have become one of the most important data sources for developing countries. The need for a hands-on, practical handbook rich with examples and best practices in designing samples was stressed. It was in this light that the participants were requested to contribute to the improvement of the draft handbook.

D.   GENERAL COMMENTS AND RECOMMENDATIONS:

6.   The meeting commended the draft handbook for its comprehensiveness and technical soundness and strongly recommended that it be published once the suggested amendments have been incorporated. The experts welcomed the emphasis given throughout the handbook to concrete examples and noted that, once published, it will provide an important practical reference tool for statisticians and other experts involved in designing sample surveys and developing sampling strategies in particular.

7.   In the discussion of the scope of the publication, the importance of meeting the needs of a non-specialized audience was raised. In order to do so, it was recommended that the handbook include a greater number of practical examples relating to various types of surveys (labour force surveys, demographic and health surveys, etc.) and requested that the language used be simplified in order to reach a wider audience, improve readability and facilitate translation.

8.   The experts also called for greater emphasis on total quality management throughout the handbook and requested that greater importance be given to pilot surveys.

9.   The meeting made four major recommendations related to the general scope and structure of the publication. These were to:

a.	Modify the title of the handbook to better reflect its content. It was noted that while data processing, analysis and dissemination represent important aspects in household survey design, the focus of the publication should be on sample design. "Handbook on designing samples for household surveys, including some aspects of survey design" was suggested as a provisional title that might be considered.

b.	Include an additional chapter providing an overview of the main aspects of household sample surveys (such as training, questionnaire design, budgeting, etc.), possibly drawing form material in draft chapter 8 "Data Processing, analysis and dissemination" and annex two "Planning and execution of surveys", as well as the forthcoming United Nations technical report on "The Design and Analysis of Household Surveys in Developing and Transition Countries" (see para. 10). It was suggested that, where relevant, the chapter should refer to existing United Nations publications, including the National Household Survey Capability Programme (NHSCP) manuals.

c.	Review and reorganize the content and structure of some of the existing chapters (see Annex 1 for details). In particular it was proposed that the content of the draft chapter "Data Processing, analysis and dissemination" be subdivided into three new chapters (see para. 20).

d.	Consolidate and streamline related materials throughout the handbook, providing cross-references and removing duplicate discussions.

10.	A brief overview of the forthcoming United Nations technical report "The Design and Analysis of Household Surveys in Developing and Transition Countries" was provided to the meeting. It was noted that this document and the current handbook are complementary to each other, the former offering a more theoretical treatment of selected topics in survey design, while the latter aims at providing practical approaches to sample design with many examples as a hands-on handbook.

E. COMMENTS AND RECOMMENDATIONS SPECIFIC TO EACH DRAFT CHAPTER

Introduction

11. The meeting recommended that the introduction to the handbook provide a more detailed description of the overall purpose, structure and content of the handbook.

I. Main sources of socio-demographic statistics (ESA/STAT/AC.93/1)

12. The chapter should be changed to Data Sources. The meeting emphasized the importance of the introductory chapter and gave the following suggestions on how to strengthen its scope and structure:

    a.   Provide an illustration of the shortcomings of administrative records and census data, stressing the importance of household surveys when other two sources fail to provide the requisite data.

    b.   Add a discussion on the issue of coordination among the three data sources, as it is important to improve consistency and comparability.

    c.   Allocate more attention to the need to strengthen statistical capacity in developing countries.

    d.   Cover issues such as master samples, mapping, and maximum use of census data through a variety of cross-tabulations.

II. Sampling strategies (ESA/STAT/AC.93/2)

13. The meeting welcomed the chapter as being very comprehensive and well written. A number of possible modifications/additions were however, recommended. These include the need to:

    a.   Provide in the introduction an overview of the objectives and structure of the chapter and develop a set of structured conclusions.

    b.   Identify the various kinds of household surveys and provide guidance on

appropriate sampling strategies for each.

c.   Include illustrative examples on the different sampling strategies that could be adopted with respect to surveys focusing on various areas of policy concern (education, health, labour force, poverty, etc.) and describe the differences which exist with respect to these surveys. National as well as international experiences - Multiple Indicator Cluster Survey (MICS) and Demographic and Health Survey (DHS) - could be used.

d.   Provide country experiences in implementing the Multiple Indicator Cluster Survey (MICS) and Demographic and Health Survey (DHS) might also be included giving an account of problems encountered and lessons learned.

e.   Categorize survey design strategies according to a typology that takes into account the statistical capacity and resources of various countries.

f.   Provide a check list of possible solutions that could be adopted whenever problems arise.

g.   Include in the chapter a discussion on the importance of integration and coordination among surveys.

h.   Dedicate greater attention in the chapter to a discussion on survey costs with examples.

i.   Include rotation sampling in the chapter, discuss allocation schemes and include some guidance the choice of variables for stratification purposes.

j.   Discourage the use of non-probability sampling.

k.   Consider referencing/integrating material from draft chapter 6 "Estimation of sampling errors for complex survey data" relevant to error estimation.

IIIA.   Sampling frames and master samples (ESA/STAT/AC.93/3, subsection A)

14.   The meeting noted that the topics covered in this chapter were very useful, comprehensive and theoretically sound. Some of the main points raised with respect to sampling frames were:

a.   That although allocation across domains is touched on in chapter 2 "Sampling strategies" through stratification during ''proportionate allocation across domains'', this procedure should be reiterated in relation to sampling frames.

b. Sampling frames designed for one purpose (say labour force) are often used for others, e.g. poverty survey in multi-round surveys. The understanding reached was that as long as objectives and measurements are clearly stated before hand, this should not pose a problem.

IIIB. Sampling frames and master samples (ESA/STAT/AC.93/3, subsection B)

15. With respect to master samples, the meeting reiterated their utility, with the provision that they are periodically updated - every 2 to 3 years - to account for changes in the size and characteristics of the target population. The meeting also recommended that the chapter:

a. Emphasize the need for a master sample for countries that have or wish to develop a continuous survey programme.

b. Provide more details on the selection of a master sample, and its relation to the cost and purpose of survey.

c. Address the issue of documentation as a critical aspect in maintaining the master sample.

d. Underline the importance of coordination with stakeholders, such as line ministries, in the design of survey programmes which make use of a master sample for different surveys.

e. Discuss the advantages and disadvantages associated with the size of the master sample.

f. Include the example of the Nigerian survey which used rotation, replication and implicit stratification.

g. Provide examples illustrating the experience of countries in transition (Poland, Hungary, etc.).

IV. Documentation and evaluation of sample designs (ESA/STAT/AC.93/4)

16. The meeting recognized that chapter 4 should have a central role in the publication since documentation and evaluation of sample designs are too often neglected by countries. The experts recommended that chapter 4:

h. Emphasize the importance of efficient and reliable software packages for estimating standard errors etc. Current listing of software packages known to the United Nations Statistics Division might be incorporated.

i. Encourage the practice of preparing technical reports, preferably in concurrence with the publishing of survey results.

a. Emphasize the need for proper documentation, calling on national statistical offices to assign a special office/officer for documentation.

b. Provide users with good practices and include an annex presenting an outline of recommended elements for documentation and evaluation.

c. Stressed the importance of including a model of cost components with regard to section 4.6 "Information on cost". This would include survey costs models and documentation formats from:

− National and international survey organizations responsible for, or financing, household surveys (such as the Demographic and Health Survey (DHS), the World Health Survey), national statistical offices etc.

− Corporate businesses, looking closer at the model of "cost drivers" - factors that drive costs - for possible use in survey budgeting.

d. Include an explanation of the term "metadata".

V. Construction and use of sample weights (ESA/STAT/AC.93/5)

17. A list of detailed comments and suggestions was provided by the discussant in written format for inclusion in the chapter. Other recommendations by the experts were to:

a. Add more examples in this chapter, providing, when necessary, weights for every stage of selection in a tabular form.

b. Revise the content of this chapter in line with the relevant recommendation given for other chapters in the handbook.

c. Review possible duplications between this chapter and chapter 4 "Documentation and evaluation of sample designs".

d. Provide a warning about the negative effects of substitution in the case of

nonresponse.

    e.   Revise the discussion in section 5.4.2 indicating the fact that the three procedures listed in the section do not reduce non-response bias.

    f.   Discuss the advantages and practical limitations of self-weighting.

VI.   Estimation of sampling errors for complex survey data (ESA/STAT/AC.93/6)

18.   Experts agreed on the importance of this chapter and proposed some additions to its present content, including elaborating certain sections and providing more practical examples. Specifically the meeting recommended to:

    a.   Consider adding *presentation* and interpretation of sampling errors, as well as confidence intervals, in the chapter, and changing the title to "Estimation and presentation of sampling errors for complex survey design". Make a reference to the guide published by the US.

    b.   Provide formulas on how to calculate sampling errors for different designs, using detailed examples, before steering users to the appropriate software packages. In addition, show the uses of sampling errors, for example in construction of confidence intervals.

    c.   Consider including the calculation of design effect.

    d.   Provide, if possible, estimates of sampling errors at different levels of disaggregation.

    e.   In relation to section 6.1 "Introduction", convey the rationale for estimating sampling error; for example, that it is essential when survey objectives call for making inferences, that it measures reliability of the survey, etc.

    f.   In reference to section 6.2 "Pitfalls of using standard statistical packages", add additional examples besides Demographic and Health Surveys (DHS). Include a table comparing results based on simple random sampling (SRS), simple random sampling with weights, and the recommended method.

    g.   For section 6.3 "Methods of estimating sampling error", elaborate on the two methods of sampling error approximation in order to better assist users in determining which is more appropriate for their specific situation (i.e., given

the survey design, available resources and software, etc). Define c in the formula for variance (see para. 8).

h.   In section 6.4 "Preparation of data files", expand and make this section clearer. Specify the parameters required by various software packages. Temper the language in para. 10.

i.   In reference to section 6.5 "Computer software packages, include SPSS and look into borrowing from what has been compiled and evaluated by others (e.g., Jim Lepkowski (University of Michigan, Survey Research Center), D. Brogan). Provide their websites.

VII.   Nonsampling errors in surveys (ESA/STAT/AC.93/7)

19.   The meeting acknowledged the challenges inherent in covering nonsampling errors in one chapter given the breath and complexity of the subject and commended the chapter for its comprehensiveness. A list of detailed comments and suggestions was provided by the discussant in written format for inclusion in the chapter. Besides these comments the meeting recommended to:

a.   Provide in an annex a check list of sources of nonsampling error, expanding on the current list to include other types such as imputation errors, interviewer bias, report error, etc.

b.   Further emphasize the impact of nonsampling error on the overall quality of the survey, and explain how the different types of nonsampling error can affect comparability.

c.   Underscore the relationship between sampling and nonsampling errors, describing how different survey designs can be affected by different types of nonsampling error.

d.   Further describe the impact of substitution.

e.   Clarify the relationship between sample size and total error, emphasizing the role of nonsampling errors.

f.   Emphasize total quality management in the context of nonsampling error and stress the importance of quality monitoring at all stages of the survey process.

g.   Indicate useful websites in the list of references.

h.   Consider the inclusion of the illustration of the so-called "Pythagoras theorem" graph showing the relationships among mean square error, sampling variance and bias.

VIII.   Data Processing, analysis and dissemination (ESA/STAT/AC.93/8).

20.   Experts felt that the draft chapter provides a comprehensive treatment of a very broad area and will be useful to both survey statisticians and persons involved in data processing. They agreed, however, that it needed a bit of restructuring and reorganization. A list of detailed comments and suggestions was provided by the discussant in written format for inclusion in the chapter. Besides these comments, the meeting recommended that:

a.   Given the breadth of the topics covered, this chapter be split into three separate chapters (one focusing on data processing, one on analysis and reporting and one on dissemination). The data processing chapter should specifically address sampling-related processing requirements, such as the field listing, sampling frame, sample design specifications, estimation of sampling errors, etc. A section on survey report writing, to be part of the dissemination chapter, was proposed, recognizing that report writing is a problem in many developing countries.

b.   The sections related to the technology of data processing be separated from the conceptual part and that the former be included as an annex while the later remain as part of the text of the chapter.

c.   Experts carefully reread the chapter, paying attention to the presentation and interpretation of the subject matter, and send their individual comments to the UNSD in the shortest possible time.

IX.   Annexes

21.   It was suggested that the title of Annex one be changed to "Overview of sampling design" and that some editorial corrections be introduced.

F.   EVALUATION OF THE EXPERT GROUP MEETING

22.   At the end of the meeting an evaluation questionnaire was submitted to each of the participants. All eight of the participants submitted completed evaluation forms. The overall evaluation of the training Expert Group Meeting by the participants was very positive.   About 50 per cent of the participants indicated that the meeting was very good and 35 per cent that it was excellent. One participant did not evaluate the overall quality of the meeting.

23.   The overwhelming majority (7 out of 8) of participants expressed satisfaction with the overall organization of the meeting, with one participant not providing an evaluation. Fifty per cent of the participants rated it as very good and 35 per cent as excellent.   Likewise travel arrangements were evaluated by 50 per cent of the participants as excellent and by 35 per cent as very good, with one participant abstaining from the evaluation. All participants stated that they had benefited from attending the Expert Group Meeting and all participants except one felt that the meeting had met its stated objectives.

24.   In relation to the specific sessions the following evaluations were provided. For session 1 "Main sources of socio-demographic statistics" 2 participants considered it excellent, 5 as very good, and 1 as good.   Session 2 "Sampling strategies" was evaluated as excellent by 5 participants and as very good by 3 participants. Session 3A "Sampling frames was considered excellent by 4 participants, very good by 3 participants and good by 1 participant. Four participants considered session 3B "Sampling frames and master samples" as excellent, 2 as very good and 2 as good. In the evaluation for session 4 "Documentation and evaluation of sample designs" 2 participants considered it excellent, 3 very good and the remaining 3 as good. With respect to session 5 "Construction and use of sample weights" 3 participants evaluated it as excellent and 5 as very good. For session 6 "Estimation of sampling errors for complex survey data" 1 participant considered it excellent, 5 as very good, 1 as good and 1 as satisfactory. Session 7 "Nonsampling errors in surveys" was considered excellent by five participants, very good by 2 participants and good by 1 participant. The evaluation for session 8 "Data processing, analysis and dissemination" was the following: 3 participants considered it excellent, 4 very good and 1 good. Finally the Annexes were evaluated as excellent by 1 participant, as very good by 5 participants and as good by 2 participants.

ANNEX III. PROPOSAL FOR REVISING THE STRUCTURE OF THE DRAFT HANDBOOK

Chapter 1 Data sources (expanded)
Chapter 2 Survey planning
Chapter 3 Sampling strategies
Chapter 4 Sampling frames and master samples
Chapter 5 Documentation and evaluation of sample designs
Chapter 6 Construction and use of sample weights
Chapter 7 Estimation of sampling errors for complex survey data
Chapter 8 Nonsampling errors in surveys
Chapter 9 Data processing
Chapter 10 Analysis
Chapter 11 Report writing and dissemination
Annexes

One suggested proposal for the title of the handbook is **"Practical Guidelines for Designing Household Survey Samples"**.

ANNEX 2. ORGANIZATION OF WORK

Expert Group Meeting to Review the Draft Handbook on
Designing of Household Sample Surveys
3-5 December 2003
Venue: Conference Room, 19th floor, DC-2 Building,
2 United Nations Plazas, New York

Wednesday, 3 December 2003

Chair: Jan KORDOS (Poland)

9:30 a.m. - 10:30 a.m.   **Registration of participants**

10:30 a.m. - 11:00 a.m.   **Opening**
                                   Willem DE VRIES

11:00 a.m. - 11:40 a.m.   **Main sources of socio-demographic statistics**
                                   (ESA/STAT/AC.93/1)
                                   Speaker: Jeremiah BANDA (United Nations Statistics Division)
                                   Discussant: Samir FARID (United Kingdom)
                                   Note taker: Tiziana LEONE (United Nations Statistics Division)

11.40 a.m. - 12.00 p.m.   **Coffee break**

12:00 p.m. - 1:00 p.m.   **Sampling strategies (ESA/STAT/AC.93/2)**
                                   Speaker: Anthony TURNER
                                   Discussants: Beverley CARLSON (ECLAC)
                                   Note taker: Clare MENOZZI (United Nations Statistics Division)

1.00 p.m. - 2.00 p.m.   **Lunch break**

2:00 p.m. - 3:00 p.m.   **Sampling strategies (cont.)**

3.00 p.m. - 3.20 p.m.   **Coffee break**

3:20 p.m. - 4:00 p.m.	**Sampling frames and master samples (ESA/STAT/AC.93/3, subsection A)**
	Speaker: Anthony TURNER (U.S.A.)
	Discussant: Udaya Shankar MISHRA (India)
	Note taker: Yacob ZEWOLDI (United Nations Statistics Division)

4:00 p.m. - 5:00 p.m.	**Sampling frames and master samples (ESA/STAT/AC.93/3, subsection B)**
	Speaker: Anthony TURNER (U.S.A.)
	Discussant: Beverley CARLSON (ECLAC)
	Note taker: Margaret MBOGONI (United Nations Statistics Division)

Thursday, 4 December 2003

Chair: Oladejo O. AJAYI (Nigeria)

9:30 a.m. - 11:00 a.m.	**Documentation and evaluation of sample designs (ESA/STAT/AC.93/4)**
	Speaker: Anthony TURNER (U.S.A.)
	Discussant: Edwin ST CATHERINE (Saint Lucia)
	Note taker: Malin SYNNEBORN (United Nations Statistics Division)

11.00 a.m. - 11.20 a.m.	**Coffee break**

11:20 a.m. - 1:00 p.m.	**Construction and use of sample weights (ESA/STAT/AC.93/5)**
	Speaker: Ibrahim YANSANEH (United Nations)
	Discussants: Oladejo O. AJAYI (Nigeria)
	Jan KORDOS (Poland)
	Note taker: Haoyi CHEN (United Nations Statistics Division)

1:00 p.m. - 2:00 p.m.	**Lunch break**

2:00 p.m. - 3:00 p.m.	**Estimation of sampling errors for complex survey data (ESA/STAT/AC.93/6)**
	Speaker: Ibrahim YANSANEH (United Nations)
	Discussant: Jan KORDOS (Poland)
	Note taker: Linda GO (United Nations Statistics Division)

3.00 p.m. - 3.20 p.m.	**Coffee break**

3:20 p.m. - 5:00 p.m.	**Nonsampling errors in surveys (ESA/STAT/AC.93/7)**
	Speaker: Jeremiah BANDA (United Nations Statistics Division)
	Discussant: Shyam UPADHYAYA (Nepal)
	Note taker: Clare MENOZZI (United Nations Statistics Division)

 Chair: Beverley CARLSON (ECLAC)

9.30 a.m. - 10.40 a.m.   **Data processing, analysis, and dissemination (ESA/STAT/AC.93/8)**
Speaker: Maphion M. JAMBWA (Botswana)
Discussant: Edwin ST CATHERINE (Saint Lucia)
Note taker: Yacob ZEWOLDI (United Nations Statistics Division)

10.40 a.m. - 11.00 a.m.   **Coffee break**

11.00 a.m. - 12.00 p.m.   **Annexes (ESA/STAT/AC.93/9)**
Speaker: Jeremiah BANDA (United Nations Statistics Division)
Discussants: Oladejo O. AJAYI (Nigeria)
Udaya Shankar MISHRA (India)
Note taker: Linda GO (United Nations Statistics Division)

12:00 p.m. - 1:00 p.m.   **Overall structure of the handbook and conclusions**
Note taker: Clare MENOZZI (United Nations Statistics Division)

ANNEX 3. LIST OF PARTICIPANTS

Expert Group Meeting to Review the Draft Handbook on
Designing of Household Sample Surveys
3-5 December 2003
New York
Venue: Conference Room, 19th floor, DC-2 Building,
 Two United Nations Plaza, New York

List of experts

Name	Title and affiliation
Mr. Oladejo Oyeleke AJAYI	Consultant, Nigeria
Ms. Beverley CARLSON	Division of Production, Productivity Management, UN Economic Commission for Latin America and the Caribbean (ECLAC), Santiago, Chile
Mr. Samir FARID	Statistical Consultant, Egypt
Mr. Maphion M. JAMBWA	Technical Adviser, SADC/EU, Gaborone, Botswana
Mr. Jan KORDOS	Professor, Warsaw School of Economics, Warsaw, Poland
Mr. Udaya Shankar MISHRA	Associate Fellow, Harvard University, Boston, USA
Mr. Edwin ST. CATHERINE	Director, Director of Statistics, St. Lucia
Mr. Anthony TURNER	Sampling Consultant, U.S.A.
Mr. Shyam UPADHYAYA	Director, Integrated Statistical Services (INSTAT), Nepal
Mr. Ibrahim YANSANEH	Deputy Chief of Cost of Living Division, International Civil Service Commission (ICSC), United Nations, New York.

List of United Nations Statistics Division staff

Name	Title and affiliation
Mr. Willem DE VRIES	Officer-in-Charge, United Nations Statistics Division
Mr. Jeremiah BANDA	Chief, Social and Housing Statistics Section, United Nations Statistics Division
Ms. Grace BEDIAKO	Chief, Demographic Statistics Section, United Nations Statistics Division
Ms. Erlinda GO	Statistician, Social and Housing Statistics Section, United Nations Statistics Division
Mr. Yacob ZEWOLDI	Statistician, Social and Housing Statistics Section, United Nations Statistics Division
Ms. Margaret MBOGONI	Statistician, Demographic Statistics Section, United Nations Statistics Division
Ms. Clare MENOZZI	Associate Statistician, Social and Housing Statistics Section, United Nations Statistics Division
Ms. Haoyi CHEN	Associate Statistician, Demographic Statistics Section, United Nations Statistics Division
Ms. Tiziana LEONE	Associate Demographer, Demographic Statistics Section, United Nations Statistics Division
Ms. Malin SYNNEBORN	Associate Statistician, Social and Housing Statistics Section, United Nations Statistics Division
Mr. Romulo JULIAN	Statistical Assistant, Social and Housing Statistics Section, United Nations Statistics Division
Mr. Seiffe TADESSE	Statistical Assistant, Demographic Statistics Section, United Nations Statistics Division
Ms. Sibylle MARXGUT	Web Site Clerk, Social and Housing Statistics Section, United Nations Statistics Division