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**ECONOMIC AND SOCIAL COUNCIL**

Training workshop for national census personnel within  
the framework of the 2000 round of population and  
housing censuses

15-19 November 1999  
Addis Ababa, Ethiopia

**REPORT OF THE REGIONAL WORKSHOP ON IMPROVING  
THE QUALITY OF AFRICAN STATISTICS FOR  
ENGLISH SPEAKING COUNTRIES**

**TECHNICAL DOCUMENT**



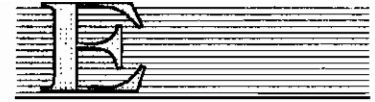
**UNITED NATIONS**  
**ECONOMIC AND SOCIAL COUNCIL**

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**ECONOMIC COMMISSION FOR AFRICA**

Regional Workshop on improving the quality of  
African statistics for English-speaking countries

Addis Ababa  
14 – 18 December 1998



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**REPORT**

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## A. ATTENDANCE AND ORGANIZATION

### Opening and duration

1. The Regional workshop on improving the quality of African statistics met at the Headquarters of the Economic Commission for Africa (ECA), Addis Ababa, Ethiopia from 14 December to 18 December 1998. The meeting was organised by the Development Information Services Division of the ECA with the financial support of the Government of the Republic of Korea. The International Programs Center (IPC) of the United States Bureau of the Census provided study materials and a resource person. The Chief of the Development Information Services Division opened the meeting on behalf of the Executive Secretary.

### Attendance

2. The workshop was attended by participants from the following countries: Botswana, Egypt, Ethiopia, Gambia, Malawi, Mauritius, Mozambique, Namibia, Nigeria, Seychelles, Swaziland, South Africa, Tanzania, Uganda and Zambia.

3. A participant representing the IPC, United States Bureau of the Census attended the workshop as a resource person.

4. Representatives of the following organizations also attended the workshop: the African Development Bank (ADB), the Southern African Development Community (SADC) and the Organization of African Unity.

### Election of officers

5. The workshop elected Mr. Hendrick Gappy (Seychelles) as Chairperson, Mr. A. S. Ndow (Gambia) as Vice-Chairperson and Ms. Batokozile Mlalazi (South Africa) as Rapporteur.

### Adoption of the agenda and organizational matters

6. The workshop adopted the following agenda.

#### Agenda

1. Opening statement
2. Election of officers
3. Adoption of the agenda
4. Country practices on improving the quality of official statistics
5. The quality of official statistics: an overview
6. Factors affecting the quality of official statistics
7. Classification of errors and their measurement
8. Census and survey errors and their measurement
9. Quality control and error reduction
10. Data integration

11. Conclusion and recommendations
12. Evaluation of the workshop
13. Closing

## B. ACCOUNT OF PROCEEDINGS

### Opening of the workshop (agenda item 1)

7. The Chief of the Development Information Services Division (DISD), Ms. Karima Bounemra Ben Soltane, opened the workshop on behalf of the Executive Secretary of the Economic Commission for Africa (ECA), Mr. K.Y. Amoako. After welcoming the participants, the Executive Secretary thanked the Korean Government for the financial support to the workshop through the project on "Enhancing African Statistical Capacity". He also thanked the IPC, United States Bureau of the Census, for the provision of materials and a resource person for the workshop.

8. He informed the workshop of the restructuring of the ECA in January 1997, the objective of which was to focus efforts and increase synergies to serve Africa better. He stated that the purpose of the workshop was to contribute to the improvement of African statistics by sharing experiences, increasing awareness and promoting measures that could be adopted to improve the quality of official statistics.

9. The Executive Secretary emphasized the importance of minimizing errors of different types that can affect the quality of data. Statistical information of poor quality can mislead decision-makers and planners and result in costly mistakes and faulty development plans. He emphasized that quality assurance in terms of relevance and accuracy was important for statistical work as it related to dissemination of statistical products through publications and other electronic media such as the Internet.

10. Recalling the *Addis Ababa Plan of Action for Statistical Development in Africa in the 1990s*, (Addis Ababa Plan of Action) he stated that African statistical offices were requested to establish organizational units on methods and standards and to study ways and means of improving the quality of statistics. He noted that some countries had already established these units and encouraged those countries which had not yet done so to undertake periodic reviews of the organizational structures of their offices and establish those units.

11. Finally, the Executive Secretary stated that the workshop was organized by ECA in response to the recommendation made by African countries in the Addis Ababa Plan of Action. In that regard he looked forward to the recommendations that would be made to improve and advance the quality of African statistical information. He thanked Ms. Rebecca Sauer of the IPC, US Bureau of the Census and for her participation and IPC's contribution to the workshop in the spirit of partnership created through the Coordinating Committee on African Statistical Development of which her organization was a member.

### Country practices on improving the quality of statistics (agenda item 4)

12. Under this agenda item participants presented reports prepared for the meeting. Each country participant presented the experiences of his/her country, the problems and the measures taken or planned to address them.

### Country presentations

13. The country presentations are reported below by order of presentation.

#### (a) Nigeria

14. The participant from Nigeria explained that the Federal Office of Statistics (FOS) is the central statistical agency of the Federal Government of Nigeria, established by an Act of parliament to generate data on the activities of inhabitants of the country. However, statistics was in the concurrent legislative list thereby empowering other arms of government to engage in statistical activities related to their various areas of interest.

15. Sources of poor statistical product quality included defective frames, wrong estimation procedures, non-response, incomplete coverage, falsification of data by respondents, complicated and voluminous questionnaires, insufficient and inadequate analytical statistical software, inadequate equipment, printing errors, and inadequate report writing skills. In addition, poor statistical culture and inadequate funding of statistical activities also contributed to poor quality of data.

16. Some of the remedies put in place to enhance the quality of statistics included modernization of production processes and clearing of the backlog of statistical publications. In addition, intensification of training of staff, collaboration, cooperation and coordination of statistical activities were encouraged. The FOS had started institutionalization of Total Quality Management (TQM) principles as a means of promoting a quality culture.

17. In order to enhance statistics, efforts were made to sustain awareness seminars and workshops involving users in government and private sector operators. The FOS objective was to promote quality through sustained quality improvement techniques by motivating and involving all the statistical work force in further education.

#### (b) Botswana

18. The participant from Botswana stated that quality was at the top of the Central Statistics Office's (CSO) priorities in its responsibility of producing statistics required for policy formulation, planning and decision making. In an effort to address the quality of its products a user needs assessment (UNA) exercise was carried out in 1995. The UNA was used to prepare a profile of the strengths and weaknesses of the CSO.

19. Among the problems affecting the quality of official statistics in Botswana was lack of capacity, manifested in two ways : (i) staff shortage and (ii) lack of experience in certain specialised areas.

20. Due to staff shortage many key areas had serious backlogs – national accounts, data processing, environmental statistics, etc. The area most affected was data processing largely due to the fact that government could not match the attractive wages offered by the private sector. As a result there were many projects for which systems still remained to be developed.

21. Because of very limited experience on environmental and industrial statistics, outputs in the two areas have not been forthcoming. Moreover, environmental issues were becoming important at the local and international levels. Lack of capacity in sampling methodology had led to problems in the analysis of agricultural sample survey data. Other areas which experienced similar problems were the Wholesale

Price Index (started in 1997) and the Construction Price Index which was reported to be at a preparatory stage.

22. The main sources of errors were demarcation of Enumeration Areas (EAs) which were poorly done in the 1991 census. This problem seriously affected the household surveys to the extent that the number of dwellings listed in the same EAs but in different surveys differed considerably. Experience has also shown that editing and coding are poorly done.

23. Reports submitted to the Government Printer take at least six months to be printed. However, realising the seriousness of such delays to the quality of CSO outputs, the Government has permitted CSO to contract a private printer on a trial period of two years.

24. Following the 1995 user needs assessment, a number of positive developments had taken place to improve the quality of official statistics. Among the developments were:

- establishment of a Research and Development Unit ;
- setting up of a strategic planning and development committee ;
- establishment of user-producer committees ;
- computerisation of data resulting from day-to-day government work, under the government data network project ;
- launching of report writing and management courses for staff at middle management level and above.

(c) **Namibia**

25. The participant from Namibia explained the historical background to the establishment of the Central Bureau of Statistics (CBS) in 1991 and then gave a synopsis of the CBS organizational structure. It was also in 1991 that Namibia had carried out a population and housing census. She then gave a detailed review of population and housing statistics, economic statistics and information systems in her country.

26. The following were some of the factors identified as contributing to the poor quality of statistics in Namibia :

- lack of expertise among the local staff in census taking;
- lack of adequate preparation for the population census;
- non-response;
- the incorrect enumeration procedures, the Consumer Price Index (CPI) covered only Windhoek and the weights were outdated;
- non incorporation of financial statistics into national accounts of Namibia;
- lack of data on the informal sector;
- lack of resources and skills within CBS.

27. In order to address the problems the participant proposed the following :

- early planning and use of the lessons of the 1991 Population and Housing Census especially in the area of Cartography;



- conduct intensive training in all censuses/surveys operations in advance of the 2001 Population and Housing Census;
- introduction of measures to improve the quality of other official statistics.

(d) **Gambia**

28. The participant from Gambia explained that the Central Statistics Department (CSD) was established in 1972, as the main agency responsible for the production of statistics. Over the years, however, the statistical system developed into a decentralised one, mainly because of the CSD's lack of capacity to produce statistical data at sectoral levels, and the fact that satellite statistical units developed as appendages to programme/projects or planning agencies. NGOs also developed their own statistical units.

29. This development led to problems of coordination, standardization and collaboration which necessitated adoption of strategies such as revision of the Statistics Act, adoption of common statistical instruments and the Common Country Assessment and establishment of user-producer working groups.

30. Quality improvement modalities included thorough training, monitoring of field activities, proper planning of operations and adoption of quality control measures at the office level, during processing and dissemination stages. The need for metadata provided an important component of quality assurance. Finally he added that provision of adequate funds was always a necessity for improving the quality of statistics.

(e) **Zambia**

31. In his presentation, the participant from Zambia gave a brief account of official statistics in Zambia. He explained the legal framework for the production of official statistics through the Central Statistical Office (CSO) which is the main institution mandated to collect, process, analyse and disseminate official statistics. He reviewed the organisational structure of the CSO, highlighted the main types of official statistics produced and discussed some of the quality control measures which were in place in the production process. Those measures included:

- constant updating of the establishment register;
- retraining of field and office staff;
- conduct of follow-ups to non-responding units;
- promotion of public relations activities and improvement in the institutional relationship with other statistical stakeholders.

32. He noted that inadequate material and financial resources, lack of or inadequate skilled human resources and high staff turnover were some of the main operational constraints experienced in the production of official statistics.

33. He concluded that improvements in official statistics should be a continuous process and therefore a good statistical development plan should include activities designed to constantly enhance and improve the quality of official statistics.

(f) **Mauritius**

34. The participant from Mauritius stated that the Central Statistical Office (CSO) in Mauritius has responsibility for most official statistics except those in the banking, health and fisheries sectors. The sources of raw data comprise administrative records, censuses and sample surveys.

35. Administrative sources have been used for a long time. With developments in user statistical requirements, it was necessary to make modifications at source, so as to achieve uniformity in definition, coverage etc. This was not always easy or convenient. However, this inexpensive and more readily available source of important data will be increasingly used with the advent of computerisation in all sectors, and as CSO's requirements are smoothly integrated into the administrative information system.

36. Housing and Population Censuses have also been undertaken for a long time, the last one being in 1990 when it was implemented in two stages. In the first stage, the Housing Census was taken in March, for which purpose the whole country was canvassed and demarcated into well-defined and easily recognisable Enumeration Areas. This was followed in June/July by the Population Census.

37. The same Enumeration Areas have been continuously updated by the Cartographic Unit of the CSO to provide a frame of Primary Sampling Units (PSUs) for various household sample surveys. In addition to Budget Surveys and Labour Force Surveys, the same frame has served as a basis for the Continuous Multipurpose Household Survey (CMPHS).

38. Censuses and surveys of establishments are regularly taken for various purposes the most important of which is national accounts. Surveys are based on a directory of establishments kept up-to-date by the CSO. Establishment surveys are mainly postal and have to be always followed-up by personal contacts by the staff because of non-reponse or to settle queries.

39. Legislative support for all collection of data is provided by the Statistics Act which, among others, requires all persons so requested to furnish the necessary information to the CSO. At the same time, publicity campaigns through mass media and explicit requests to syndicates and other unions have served to increase the response rate.

(g) **Tanzania**

40. The participant from Tanzania explained that areas in which errors are committed include agricultural statistics, industrial statistics, trade statistics and the national accounts. In agricultural statistics there are problems of estimating areas under crops, average yield (harvest) and the problem of coverage during bad weather. For the other areas such as industrial statistics and national accounts the problems are experienced in estimating production from unorganised sectors (informal sector) of the economy, because operators in these sectors do not keep records. Finally, in some cases, coverage has been compromised because of inadequacy of funds.

41. Quality control measures taken to address these problems included:

- improving the coverage of the data collected (proper preparation and good supervision);
- careful preparation of the instruments for data collection i.e. questionnaires, instruction manuals etc;

- careful sample selections and control;
- elaborate field organisation and close supervision;
- control of data processing operations (editing, data entry, coding and analysis).

42. In summary, a number of procedures were being used to ensure data quality and integrity. These included pre-coded and pre-tested questionnaires, strict operational control of the flow of documents, intensive training, motivation and close supervision of staff at every level. Further, both manual and computer editing of completed questionnaires were used in an effort to minimize errors.

(h) **Ethiopia**

43. The participant from Ethiopia explained the historical background of the Central Statistical Authority (CSA). Prior to 1981, CSA operated without regional offices. Field staff for data collection were recruited and trained at the Headquarters. The office had very few vehicles and the field staff travelled from one region to another. After the National Integrated Household Survey Programme (NIHSP) was launched in 1981, field organization had changed substantially with the establishment of regional statistical offices. Thereafter the role of the Headquarters was limited to planning, survey methodology, preparing survey instruments and training of trainers and ultimately processing of survey data and preparing survey reports.

44. He stated that the quality of a survey/census data depended on three characteristics: their relevance to the needs of users, their timeliness, and their accuracy. To ensure the relevance of the survey data the yearly work plan was reviewed jointly by CSA and the Ministry of Economic Development and Cooperation (MEDAC) (from the users side). However, data users often complained that CSA surveys did not exhaustively include items of interest to them and small area and disaggregated statistics were not provided.

45. With regard to timeliness, he noted that from 1994, the main frame computer system was replaced by personal computers and subject-matter departments were gradually equipped with their own PCs. As a result the time taken for data processing has become considerably less than what it was some five years before.

46. Regarding data accuracy, he stated that sample survey reports from CSA did not previously include a section on sampling variances. However, it had then become a common practice to include a section in survey reports showing estimates of coefficients of variations for selected variables. Cautionary statements were also included to make users aware of the risks of using estimates with intermediate values of Coefficients of Variation (CVs).

47. CSA took the following measures, on a continuous basis, to reduce nonsampling errors :

- conduct intensive training through classroom lectures and field practice for enumerators and field supervisors;
- reducing enumerator-supervisor ratio and make occasional field visits by professionals from the headquarters;
- conducts publicity campaigns prior to undertaking national surveys to promote respondent cooperation.

48. In conclusion, the participant from Ethiopia recommended a number of measures which would promote the quality of statistics. In particular he highlighted the need for:

- more statisticians, demographers, programmers, and other subject-matter professionals;
- additional resource in terms of finance, field logistics, vehicles and computing equipment;
- short-term and long-term training to introduce professionals to new survey techniques;
- workshops and study tours to learn from experiences of other countries;
- fora to bring together data producers and data users prior to finalizing survey instruments.

(i) **Seychelles**

49. The participant from Seychelles explained that Seychelles had a good statistical system and was promoting an integrated approach of various computerised administrative procedures within government institutions so as to facilitate the sharing of data. He stated that the Management and Information System Division (consisting of the National Statistical and National Systems Development Offices) was responsible for the national computer policy and implementation of the Statistics Act. He added that in order to maintain consistency across the national level, the National Population Database (NPD) had been created under which every Seychellois had a unique National Identity Number (NIN). The NPD was automatically updated as the births, deaths or migration occurred, hence providing population data in real time. The NPD was also widely used for the compilation of the Electoral Voter's Register.

50. In an effort to improve the revenue collection system and better manage the limited fiscal resources, key government organisations were all being computerised. The computer network supported government and its processes by facilitating electronic interaction between government and all its constituents. This 'Electronic Government' network system consisted of the following main departments: licensing authority, business tax, trade system, social security fund and pension scheme, vehicle testing station, national population database, police system, treasury, national consumer protection (NATCOP), immigration, civil and vital registration, business registration and land information system (GIS).

51. Possible extension of the system would include the judiciary system, health information system and education system. The key identifiers are the NIN and BIN (Business Identity Number). Any transaction occurring within the Data Warehouse can easily be accessed or monitored through the key identifiers. This allows the production of disaggregated data. The Electronic Government (EG) had various security levels to ensure confidentiality. A Computer Misuse Bill and Data Protection Act were being legislated. The EG project will allow the revenue and public expenditure system to run on a real time basis, and is year 2000 compliant. All the integration systems will be fully functional by March 1999. The Administrative data were collected under the Acts of the various agencies. The EG will facilitate compilation of such statistics and enhance the use and quality of administrative records. However, there will still be a need to conduct sample surveys.

(j) **South Africa**

52. The participant from South Africa explained that Statistics South Africa (Statistics SA) produces and disseminates official statistics in support of economic growth and social development of South Africa.

53. She identified the following factors as contributing to poor quality of statistics in South Africa :

- use of administrative records which originate from various sources over which the statistical office had no control ;
- inadequate planning for field work and lack of adequate field work control;
- lack of pretesting before surveys;

- non-existence of a tabulation plans in some cases;
- a complex coding and data capturing system for household surveys and population census;
- the missing of persons or dwellings during the last census;
- the unwillingness of respondents to give correct information;
- poor or inadequate training of field staff.

54. In order to address the above problems, the following were recommended:

- strengthening of methodology unit with subject matter specialists to look into issues of methodology, questionnaire design, tabulation plan, field organisation etc;
- introducing strict control measures during the enumeration and processing stages;
- providing intensive training for all statistics staff with particular emphasis on the field work staff;
- establishing a core team of field workers, coders and data entry staff on a permanent basis.

(k) **Malawi**

55. In his presentation, the participant from Malawi discussed the quality of data in Malawi as regards data collected by the National Statistical Office, in particular demographic, economic and agricultural statistics collected through censuses and sample surveys.

56. The errors of content, coverage and non response were highlighted as affecting the quality of data. Further, timeliness in releasing data was pointed out as one of the major factors affecting the quality of Malawi's official statistics. Efforts were being taken by the National Statistical Office in Malawi to improve the quality of data. These included first decentralization of data processing such that each division now had its own data processing capacity. Second, intensification of training so as to minimize errors arising from inaccurate measurement of gardens and to improve recording of responses by interviewers. Third, continued assessment of the quality of census data using such indices as the Whipples Index and the Myres Index of Digit Preference. Fourth, software packages were being used to check coding and validate data entry as was the case with foreign trade statistics. Finally, timeliness was achieved by releasing reports with simple analysis first and then following up with detailed analysis later.

(l) **Uganda**

57. The participant from Uganda stated that the general paucity of socio-economic data caused by failure to conduct surveys in the country in the 1970s had been eliminated, to a large extent, through household surveys.

57. The first major survey was the Household Budget Survey (HBS) of 1989/90. The HBS was a single survey with emphasis on household expenditure data. The data collected was used to revise the consumption basket of the capital Kampala and for the first time the compilation of Consumer Price Indices (CPI) was extended to other urban centers. The HBS data was also used to calculate directly the "private consumption" component of GDP.

58. Using the experience from HBS, the Uganda National Household Survey Program (UNHSP) was initiated in 1992/93 to collect socio-economic data at the household and community levels. The program was designed to be implemented as a continuing annual integrated household survey with each year covering a specific set of modules. The baseline Integrated Household Survey 1992/93 was followed by annual Monitoring Surveys.

60. Since agriculture was the most important sector in the economy, a crop survey was made the Core Module in the 1995/96 UNHSP. The crop module collected limited structural and other agricultural data through a subjective method on an experimental basis from which some good usable data were obtained.

61. A lot of useful socio-economic data were collected through the surveys. However, due to financial constraints and the consequent manpower problems, not all the essential analyses were done. Even after doing the analyses, publication of the results had often turned out to be a very expensive undertaking.

(m) **Swaziland**

62. The participant from Swaziland stated that the Central Statistical Office (CSO) which was under the Ministry of Economic Planning and Development provided and maintained the national statistical data base and coordinated the statistical work undertaken by other government institutions. The objectives of the office were to design and implement methods of data collection taking into account the needs of data users and the time element in producing the statistics.

63. The office collected data on agriculture, demography, vital events, employment and wages, education, trade and data for national accounts. The quality of the data collected was compromised in part by : a) poor questionnaire design, b) serious sampling and nonsampling errors [non-response, coverage, insufficient establishment register], c) inadequate training of the surveys/censuses staff, and d) inadequate resources (manpower/material).

64. The office was trying very hard to solicit funds to train the staff and devote more time on enumerators training. It was believed that semi-autonomy could improve the operations of CSO hence discussions were underway in that regard.

(n) **Mozambique**

65. The participant from Mozambique stated that his country had established a centralised system of data collection in 1996 through the National Institute of Statistics (INE). The INE was the statistical agency responsible for collection, compilation, publication and dissemination of official statistics required for monitoring economic activities by the Government, the multi-lateral, bilateral donor community and other users. Among those statistics were national accounts; CPI, foreign trade statistics, demographic statistics and short term statistics.

66. Factors affecting the quality of official statistics included incomplete coverage, low response rate, inadequate financial resources, lack of uniformity with respect to the concepts and definitions and shortage of skilled personnel.

67. Errors encountered included data entry errors, measurement errors, coding errors and printing errors. Significant efforts had been made to control those errors through:

- coordinating with the various elements of the system towards common concepts, nomenclature and classifications to ensure comparability;
- greater contact with the main suppliers of data;
- on the job training through learning by doing or in-service training, seminars etc;

- data entry for the same questionnaire was done by two different persons and the two entries were matched by computer.

(o) **Egypt**

68. The participant from Egypt briefly highlighted responsibilities and activities of the Central Agency for Public Mobilization and Statistics (CAPMAS) to improve the quality of statistics. He identified three lines of action towards improving official statistics:

- the first line of action aimed at enhancing relevance, coverage and co-ordination through the Consultative Committee for Statistical Planning and Coordination, presided by the president of CAPMAS;
- the second line of action focussed on data quality control particularly with regard to evaluation of different stages of statistical work, conducting pre-tests and post-tests and enhancing statistical awareness;
- The third line of action concentrated on the technical aspects such as developing questionnaires and using the pre-coded questionnaires in order to save time and improve quality, updating frames, applying up to date techniques of data validation, conducting of training courses for all statistical staff, developing statistical methodology and speeding up the dissemination of statistical information.

69. The participant proposed the following recommendations to promote the quality of official statistics:

- working towards unified concepts and terms among African nations as one of the means to promoting cooperation;
- exchanging of statistical publications and experience. Such publications are to include project methodologies to enhance the value added of exchange programmes;
- promoting the use of international recommendations;
- celebrating the African Statistical Day on 18 November every year through distribution of posters provided by the Economic Commission for Africa and holding symposiums.

**Discussion on country presentations**

70. In the discussion, which followed, participants agreed that most of the problems experienced with data quality were similar. They noted, in particular:

- that the organization of the workshop and its focus on improving the quality of official statistics was in many respects very timely;
- the positive experiences of one country with total quality management and the institution of total quality control at every level of statistical operations. The commitment of the leadership and the rest of the staff to total quality control was considered an essential ingredient for success;
- the importance of undertaking data quality analysis and the need to coordinate with local university and colleges which could provide a data analysis service, be it at a fee or otherwise. Proposals to this effect included improving relations with the local universities and colleges and making microdata available to researchers after adjustments for confidentiality;

- that sources of error were mostly human but there were occasions when environmental and political factors contributed to errors in the statistics;
- that some errors arose from poor demarcation or segmentation of enumeration areas (EAs) and the poor quality of maps;
- the possibility of using administrative units as opposed to EAs as primary sampling units;
- the purposes of the master sample were discussed;
- the importance of collaboration on the part of all stakeholders during the design of questionnaires;
- the impact on data quality which often arises when resources to the national statistical agency are dwindling as departments and agencies establish their own statistical units;
- the importance of the informal sector in enhancing the accuracy of gross domestic product, and the activities of some countries which have initiated action to collect data on the informal sector. The initiatives and activities of SADC in this area were noted;
- problems experienced in the conduct of household surveys and the kind of questions that should be asked and of whom;
- recommendations that were made by some of the participants in an effort to improve the quality of African statistics.

71. Other issues discussed related to the problems of administering household survey diaries, and the inadequate emphasis on improving the quality of administrative statistics, which, it was believed, constituted the bulk of official statistics. The innovative approaches to computerization of administrative systems under implementation in Seychelles were applauded as an important contribution to improving the quality of administrative statistics.

#### The quality of official statistics in some African countries : an overview (agenda item 5)

72. A representative of the secretariat introduced the agenda item on the basis of document ECA/DISD/STAT/IQAS/92/2 and the country presentations made by the participants. He explained that the workshop had been convened in response to the Addis Ababa Plan of Action which had noted the deterioration of the quality of African statistics and urged for action to reverse the trend.

73. He explained that the secretariat had used the services of a consultant to study the quality of statistics in four selected countries as a basis for the preparation of a manual on improving the quality of official statistics in Africa. The study addressed the quality of statistics with respect to their timeliness, relevance, accuracy, coherence and clarity. The study revealed that progress on the quality of official statistics was mixed. Some of the countries had made some progress and others had not. Nevertheless, the quality of official statistics was still a major concern and had to be addressed with urgency.

74. Publication of census and survey results continued to experience severe delays and the accuracy of the statistics remained a cause for serious concern. The study and the country presentation indicated that only a few countries had methods and standards units in their national statistical offices. Further, although many countries were improving their sample designs and quality control procedures, documentations of survey experiences was minimal and there was no documentation of experiences on nonsampling errors.

75. The country presentations had also stressed the gravity of the problem and the imperative of addressing it quickly and comprehensively. The promotion of the credibility of national statistical



services would be enhanced and any proliferation of data collecting agencies would be arrested if better documentation and transparency could be put in place.

76. In the discussion participants re-emphasized the need to further improve the quality of official statistics. Some participants sought clarification on the criteria used to select the countries visited by the consultant. The secretariat explained that budgetary limitations, language considerations and the need to maintain a geographical balance were the primary criteria used to select the countries visited. Accordingly, one country was selected from West Africa, one from East Africa, and the third from Southern Africa. The fourth country was selected because it entailed no transport costs.

#### Factors affecting the quality of official statistics (agenda item 6)

77. This agenda item was introduced by the secretariat on the basis of document ECA/DISD/STAT/IQAS/98/2 "Manual on improving the quality of official statistics", country presentation, and a summary of factors affecting the quality of official statistics (Annex VII).

78. A review of sampling and nonsampling errors followed by a classification of errors affecting the quality of statistics was given. Quality characteristics include relevance, accuracy (reliability and consistency), timeliness, comparability, availability and clarity. Factors affecting each one of the characteristics were enumerated in detail. In addition, other factors which were not covered by the above characteristics were also provided including those affecting the quality of administrative records.

79. In the discussion participants pointed out that improving the quality of official statistics required executive commitment and a motivated staff, financial input, as well as a vision on quality and the creation of methods and standards units to undertake macro-economic, basic and applied research.

80. The issue of statistical offices becoming autonomous was mentioned and the extent to which autonomy could influence the quality of data was considered. The participants were then organized into working groups to deliberate on factors affecting the quality of official statistics and make recommendations.

#### Working groups

81. The working groups were formed as follows:

<u>Working Group 1</u>	<u>Working Group 2</u>	<u>Working Group 3</u>
South Africa	Botswana	Mauritius
Nigeria	Southern African Development	Ethiopia
Zambia	Community (SADC)	African Development
Mozambique	United Republic of	Bank (ADB)
Ethiopia	Tanzania	Gambia
Uganda	Ethiopia	Seychelles
Organization of	Malawi	Namibia
African Unity (OAU)	Egypt	
	IPC, US Bureau of the Census	

The reports of the working groups which were presented to the workshop are summarized below:

Working group 1

82. Working group 1 presented its recommendations by factor as shown below:

A. Relevance

- intensify user/producer interaction through seminars and workshops;
- use the mass media for the awareness drive;
- conduct user-needs assessments on a regular basis;

B. Accuracy

- ensure the standardization and harmonization of statistical norms, concepts and definitions;
- document all field and officer errors;
- ensure appropriate and adequate training of all office and field staff;
- ensure that statistical offices have a core permanent field staff;
- improve conditions and schemes of service of statistical staff;
- conduct producer/supplier seminars and workshops;
- ensure the provision of adequate modern statistical equipment such as computers, appropriate weighing and measuring scales;
- ensure adequate funding of field operations;
- ensure that frames are updated regularly;
- promote a culture of good record keeping (for administrative records).

C. Timeliness

- develop realistic work plans for all statistical activities;
- ensure adherence to time schedules.

D. Availability

- imbibe the culture of quality management in statistical offices;
- apply flexibility in the release of statistical products.

E. Clarity

- improve report writing skills for statistical staff;
- strengthen editing and proofreading skills for statistical staff.

F. Other factors

- national statistical offices should establish methods and standards units;
- field surveys should be separate from the subject-matter units;
- there should be unhindered leadership commitment to statistical development;
- all statistical staff should be oriented to quality principles and commitment to duty.

## Working group 2

83. The group acknowledged that the quality of statistics had deteriorated and there was a need to address the factors affecting the quality of official statistics. The group further confirmed that factors affecting the quality of official statistics cut across the whole structural environment of any country. The specific issues discussed and recommendations made are given below:

### I. Issues

#### A. Political

- proper legislation and coordination is necessary to enable the statistical agency to produce comparable and consistent data;
- autonomy is essential to enable statistical agencies operate efficiently and with greater independence.

#### B. Funding/budget

- the proportion of the national budget allocated to statistical activities was considered not to be sufficient;
- budgetary decisions were not needs-based.

#### C. Management

There was a need to improve documentation, to expand, update, improve and motivate staff in order to resolve manpower problems at all levels:

- there is inadequate training of appropriate personnel;
- archiving of documents was neither central nor accessible;
- professionally qualified staff need to be employed in managerial positions;
- productivity needs to be improved within the statistical organizations;
- professional staff should not hide behind complaints of lack of resources but prioritize and optimize the use of available resources.

#### D. Lack of awareness or public confidence

- there is a general lack of awareness of the importance of statistics among government officials and the public in general;
- public confidence in statistical organizations has been affected by false promises and inadequate follow-through.

### II. Recommendations

- revisit the organizational structure of NSO specifically to consider the place and role of research, documentation, quality control, and in-house-training;
- invitations to workshops should specify/target appropriate staff;
- statistics should be included in the primary and secondary school curriculum;

- promote and market statistical products and services;
- forge strong relationships between NSO and other government ministries and departments;
- foster relationships between NSO and national statistical training institutes, universities, colleges and research institutes to exploit readily available local resources for purposes of data analysis, research etc.

### Working group 3

84. Recommendations for this working group were grouped under (i) non-technical problems, and (ii) technical problems.

(i) Non-technical problems and recommendation on improving the quality of official statistics

A. Lack of political commitment

- sensitize the decision-makers;
- create a National Statistical Council if it does not already exist;
- review the Statistics Act to update it in the light of needs and developments.

B. Institutional inadequacy

- strengthen human and financial resources;
- reinforce management skills.

B1. Brain drain

- develop attractive schemes of service.

B2. Lack of statistical coordination

- establish a statistical coordination committee where it does not already exist;
- promote user/producer interaction through committees.

(ii) Technical problems affecting official statistics

A. Inadequacy of statistical data (concepts, definitions, coverage, timeliness, comparability, accuracy, relevance, etc).

- adopt or adapt international recommendations and establish national standards to meet unique national requirements;
- promote international comparability through exchange of documents on methodology and international recommendations.

B. Limited use of statistics

- sensitize the public on the importance of statistics;

- develop skills of potential users;
- promote dissemination of user friendly statistics.

C. Lack of analytical skills

- promote training of professional staff;
- provide and maintain data processing equipment and analytical software.

Discussion of working group reports

85. Following presentations of the working group reports, participants engaged in a general debate either to seek clarification or to make additional points on the issues raised.

86. Participants deliberated on the establishment of autonomous national statistical offices in African countries. While recognizing that conditions of service might be improved if autonomous statistical services were established, they raised the question of the type of autonomy which was suitable. It was further recognized that the type and degree of autonomy might vary from country to country depending on prevailing conditions.

87. The participant from Zambia explained the experience of his country in the establishment of an autonomous national statistical office. He stated that through autonomy, the degree of bureaucracy was reduced; institutional collaboration was improved and exchange programmes were facilitated. In Zambia funds were provided in the form of a grant and in addition the office could generate funds through consultancies and sale of publications based at economic prices. However, the organizational structure of the office required revisiting including reconsideration of the legal aspects.

88. The experience of the Federal Office of Statistics (FOS) in Nigeria which was semi-autonomous was described. Autonomy facilitated rapid implementation of outputs; improvement of relations with donors and technical agencies and better financial management. In a state of autonomy, budgetary estimates once approved were implemented immediately. The autonomy of the office continues to be reviewed and a new Statistics Act is expected to lead the FOS to still higher levels of autonomy.

89. In commenting on the issue of autonomy, the representative of the secretariat stated that there were plans to include this aspect in its study on issues in the management of national statistical services which would be prepared during 1999. It was stated that most of the issues raised would be addressed in the study.

90. It was mentioned that autonomy could lead to improvement in dissemination and awareness and increase the client base particularly at a lower level. However, it was feared that managers might feel that they would lose power, hence the need to proceed cautiously.

91. The establishment of the National Bureau of Statistics (NBS) in Tanzania was noted. It was mentioned that the NBS would be semi-autonomous. In that connection participants were informed that the Director-General of NBS had already been appointed and the main problem at the moment was funding for which proposals had already been made. An Advisory Board had been proposed and would operate on a non-executive status.

92. The issue of who was a statistician was raised. It was stated that statisticians in Africa had not done much to protect their profession. It was proposed, therefore, that the issues of autonomy and

protection of the statistics profession should be discussed in the document on issues of management and organization of national statistical offices to be prepared by ECA. The secretariat mentioned that in addition to the study, issues of autonomy and the statistics profession would be better addressed at the meeting of the Committee on Development Information (CODI) which was being planned to be convened by ECA in July 1999. These issues would also be raised during the ninth meeting of CASD.

93. The representative of SADC stated that issues of autonomy and the statistics profession would also be addressed at the next meeting of Directors of Statistics of the SADC countries.

94. The lack of marketing of statistical products was noted. However, it was not clear which aspect of statistical production received more funding. In that connection the ADB as well as SADC, Economic Community of West African States (ECOWAS), etc. were requested to consider funding of statistical production in Africa. The workshop then noted that a review of the pricing of statistical products was in progress in Botswana as part of efforts to raise revenue; as most agencies tended to use government facilities for free when in fact they should have been charged.

95. The efforts of ADB in funding statistical production was mentioned. In response to questions it was explained that requests for assistance should be channeled through the Ministries of Finance of the countries. It was indicated that ADB did provide grants and had already assisted 12 African countries in their statistical projects. The Gambia representative informed the workshop that his country had already benefited from ADB financial assistance.

#### Classification of errors (agenda item 7)

96. A consultant to the secretariat introduced the agenda item and relevant section of the Manual on Improving the Quality of Statistics in Africa (ECA/DISD/STAT/IQAS/98/2). He started the presentation with a definition of total error in a sample survey as the sum of two components: sampling error and nonsampling error. In the case of a census, it was pointed out that the sampling error component would be zero. It was also explained that nonsampling error might be introduced at all stages of sample survey and census operations and those included the planning and preparatory stage, the data collection stage, the data processing stage and the printing stage.

97. The objective of effective census enumeration or survey sampling practice was to reduce these errors as much as possible subject to cost and other constraints. The reduction of the sampling error component was sought through the use of an appropriate sampling design and an efficient method of estimation whereas that of nonsampling error was addressed through effective planning, organization, operational control and supervision at all stages of census/survey operations. It was explained that nonsampling errors might be classified into: coverage errors, non-response errors, response errors, data processing errors and printing errors.

98. Coverage errors would arise as a result of omission or improper inclusion of enumeration/interview units or due to misrepresentation of a target population in a sample. Such errors might also occur when an interviewed/enumerated unit failed to provide a response for any reason or when census/survey returns are lost or when they are inadvertently destroyed.

99. Response errors come about when a survey/census unit provides an incorrect response for reasons that may be attributable to the interviewer/enumerator or to the respondent or due to imperfections in the

questionnaire or even due to the particular nature of a question. Self-enumeration, which is mainly an urban mode of data collection, may also suffer from a similar problem.

100. Non-response occurs when self-enumeration results in no response or when a unit expected to be enumerated/interviewed fails to give a response either because of outright refusal or because of failure to get enumerated/interviewed on account of not being at home during the visits for interview/enumeration.

101. Data processing errors include those committed during the process of record editing, coding, data entry, estimation and tabulation. The first three types of errors may be made by clerical staff while the latter two may be attributed to professional staff. It is also possible to find such errors made as a result of employing faulty data processing software or computer programs. The last class of errors is one that may occur at the printing stage due to poor editorial work or poor operational control.

102. The presentation was also illustrated with a few examples on the effects of coverage errors on point estimates, variance and/or precision and in the construction of confidence intervals. It was particularly noted that when coverage errors were serious, they might lead to bias that might seriously invalidate any inference based on sample statistics or they might lead to serious under counts, in censuses.

103. In the discussion that followed, it was noted that it would be useful to also give a review of methods used for correcting for non-response in particular. Some of such information was then given, but it was realized that such a review would be coming at the next presentation on the measurement of non-response errors.

#### The measurement of nonsampling errors (agenda item 8)

104. A consultant to the secretariat introduced the agenda item and relevant sections of ECA/DISD/STAT/IQAS/98/2. He recalled that nonsampling errors commonly consisted of coverage errors, non-response errors, response errors and data processing errors. The first two groups of errors would lead to biases in estimates whereas response errors may result in both bias and instability in estimates or in the falsification of patterns, magnitudes and distributions in census counts. Data processing errors may also lead to similar problems.

105. The measurement of coverage errors included the use of such demographic techniques as the vital statistics method, the cohort component method, the cohort survivorship method and the cohort survival regression method which used results from two successive censuses and the total number of deaths in the interim period to derive an estimate of the relative coverage rates in the two censuses under consideration. Hence, given an estimate of the coverage rate of an earlier census, an estimate of the coverage rate of a current census would then be readily available by employing a simple ordinary least squares method of estimation.

106. Coverage errors in sample surveys may also be measured by employing record checks and re-interview surveys. Similar problems may be evaluated in censuses using post enumeration surveys using a dual system whenever possible, or with a single system otherwise.

107. Non-response errors are basically simple to measure since all that it takes is to compute the non-response rate for any given batch. However, adjusting for response can, at best, only reduce the bias attributable to such problems. A number of methods were proposed and those included imputation,

comparison techniques, repeated call-backs and analytical methods which were usually difficult to implement.

108. The measurement of such errors may also use record checks and re-interview surveys as in the case of the evaluation of coverage errors. However, one may also employ an error model to measure the magnitude of the total response error or simple response error. Measures of response error may also be readily derived using replicated sampling and repeated measurement techniques. These measures may also lead to the construction of an index of inconsistency that may enable the investigation of the relative stability of responses on specific variables of interest both in census and sample surveys. Responses errors may also be assessed using fractile analysis and demographic methods.

109. Data processing errors are measured using error rates and these are often more informative when computed separately for each agent, enumeration area and type of error. Computation of such rates would have to be a continuous process during the first few days or even weeks of a data processing operation in order to be able to take corrective action to bring about an early improvement in the quality of data processing activities. At this stage, use may be made of standard control charts using error rates. However, once error rates have come down to a tolerably low level, then acceptance sampling techniques may be employed to control the quality of the operations.

110. In the ensuing discussion, a participant observed that post-enumeration surveys would appear to have been carried out by a number of African countries, but it was not possible to learn of their experiences on account of the paucity of documentation in the area. It was subsequently observed that such documentation might not be readily available since there might be concern about losing public confidence from the possible contents of such a report. In addition, it was also noted that such studies were complicated and difficult and the reports would, therefore, take some time to prepare. Some of such instances were also mentioned.

#### Quality control and error reduction (agenda item 9)

##### (a) Error reduction methods

111. A consultant to the secretariat introduced this agenda item and relevant sections of DISD/STAT/IQAS/98/2. He explained that error control and reduction methods would be effective if they were carefully implemented at all stages of the sample survey/census operations. The stages include the planning and preparatory stage, the data collection stage, the data processing stage and the publication stage.

112. At the planning and preparatory stage, it was important to plan a program for quality control, carry out an accurate mapping/cartographic work, construct an accurate frame, make a careful selection and specification of items to be studied, design a questionnaire that had a suitable structure and content and construct an efficient sampling design and estimation techniques that would ensure the reduction of sampling error.

113. It was underlined that since bias and response error were invariably present in survey data, the precision of estimates would be best represented using the mean square error which might, in this case, have four components : sampling variance, response variance, the covariance between the sampling



deviations and response deviations and the square of the bias term. The first component can be controlled with a suitable sampling design, but the remaining three require careful planning and implementation at all stages, including those described above. Further control would be effected through careful recruitment and training of staff and the carrying out of appropriately designed pre-tests/pilot tests/pilot censuses.

114. Forms and procedures used in pre-tests by the US Bureau of the Census were also introduced and these included procedures for behavior coding for both respondents and interviewers, a procedure for rating interviewers and another for the analysis of data from such coding measurements. Use of such procedures would clearly help in reducing nonsampling errors that might otherwise be introduced by respondent or the interviewer.

115. The data collection stage would have to be carefully monitored in order to control sample selection and the actual operation of enumeration/interview. At that point, it was also important to carry out continuous field review and editing of all completed returns and prepare preliminary tallies to be reviewed against expected counts or patterns. It may also be essential to take a small sample of enumerated/interviewed units and carry out re-interviews to find out about the extent of coverage and response errors with a view toward taking early corrective measures to reduce, if not to eliminate, any such errors.

116. In the data processing stage, one must closely monitor coding, editing and data entry operations. Control charts (using error rates) may be sufficient for the purpose. Use of automation such as scanning, optical mark recognition and optical character recognition may be helpful in reducing nonsampling errors at this stage if the scanning is effective. The possibility of introducing nonsampling errors at the estimation and tabulation stage may be avoided by carefully checking the compatibility of the weights with the statistical design and through a review of trial output tables produced for review by subject-matter specialists in the pre-tabulation phase. Printing errors may similarly be controlled through careful proof-reading and editing.

117. Participants noted that the data collection stage was a critical phase where lack of close supervision and follow-up might make a difference in the quality of collected data. The forms and procedures of the US Bureau of the Census also attracted considerable interest and clarifications were given on the implementation of the procedures during pre-tests. Another basic item of discussion was the construction of establishment registers and frames using information from population and housing censuses. It was agreed that censuses could indeed be used profitably, especially by those countries which had problems of imperfect registers and sampling frames.

(b) Best practices for improving data quality

118. The representative of IPC, US Bureau of the Census presented Best Practices for Improving Data Quality on basis of the following documents : "Graphical Analysis of Data", "Protocol for Pretesting Demographic Surveys at the Census Bureau", "Evaluating Censuses of Population and Housing", "Standards for Discussion, Presentation of Errors in Data", "Popstan – A case study for the 1980 Censuses of Population and Housing".

119. She explained that a statistical agency is in the business of producing data to meet user's needs. Careful monitoring of the processes and products of surveys and censuses can help statistical agencies to meet the goals of relevance, accuracy and timeliness within budgetary and staff constraints.

120. She emphasized that in a quality control programme it was important to measure the quality characteristics of a census or survey product, compare quality measurements with predetermined

specifications or standards and develop guidelines to follow when the resulting quality characteristic measurement did not satisfy acceptance criteria.

121. A quality assurance programme needed to be worked out during the planning stage, within the framework of the schedule of activities. Resources such as staff, time and funds should be committed to specific predetermined quality assurance activities from the start.

122. Statistical agencies should strive to control each process and product created during its censuses and surveys. Whenever work changed hands from one group to another, a quality control review should be performed to maintain the integrity of the data. Quality control procedures should identify the product or process, how it would be measured, and what corrective action would be taken.

123. She identified questionnaires, field operations and data processing as some of the areas which required quality assurance measures and discussed each of the areas identified in detail. For each area she explained the aspects which should be considered in ensuring an effective quality assurance programme. Finally she emphasized that a quality assurance programme should also focus on training and documentation.

124. In the discussion following the presentations, participants discussed the need to ensure that factors which could lead to cost overruns were carefully identified and costed. It was also noted that as most African countries did not have established quality control practices, it was necessary to begin to plan towards establishment of a quality control culture and standards while realizing that the standards would be unique for each country. Ensuring a quality assurance programme would also require individual responsibility and accountability.

125. Participants also noted cases where the accuracy of census and survey results had suffered from coverage errors, and other cases where it was difficult to define the marital status of a 'husband' particularly under polygamous conditions where a husband could be both married and separated at the same time.

126. The workshop was then organized into working groups to discuss issues raised under the agenda item. The composition of the working groups remained as previously established. The working groups considered issues in error reduction and control methods and made the following recommendations.

### **Working group 1**

127. Working group 1 made its recommendations under the following subjects:

#### **A. Planning and preparatory stage**

- all stake holders meeting to ensure adequate coverage in terms of scope and content. Where such is not the practice, efforts should be made to adopt such procedures;
- where Enumeration Area (EA) maps are not defined, adequate funds should be made available for proper cartographic work. Continuous update of frame should also be undertaken;

- recruitment and training of staff should be made carefully at all levels taking into account different characteristics of the location, culture and capability of staff for different surveys and censuses.

B. Data collection

- for all survey census, resources should be available for field review of instruments of field operation (question/enumerator /respondents). Hence spot-checking is very essential.

C. Data processing

- 100% inspection should be undertaken in the first few days with systematic reduction in subsequent days;
- use should be made of automatic data processing systems wherever possible;
- avoid many open ended questions since coding could be a nightmare;
- dummy tables should be prepared in close collaboration with subject matter specialists once the variables are fully identified.

D. Timeliness availability and clarity

- efforts should be made to adhere to time schedule in the work plan and promote openness and flexibility while ensuring data confidentiality guidelines;
- organize effective training in modern techniques of report writing.

E. General

- employ user friendly modes of statistical dissemination;
- reactivate standards and quality control units;
- institutionalize total quality management principles by establishing appropriate structures any statistics offices.

Working group 2

128. The working group considered current practices of error reduction and quality control methods and recommended as follows:

- cartographic activities should move towards digitisation to enable use of GIS;
- as recommended in the Addis Ababa Plan of Action, member States are urged to establish the research, methods and standards units. Where they are already established and functional, it was proposed to include quality assurance as one of the activities;
- NSOs institute should mechanism of error measurement and control at all data collection and processing stages and map out procedures for corrective actions;
- it is recommended that there should be a documentation of all experiences in detail of census/survey mechanisms at all stages of operations;

- in absence of establishment registers countries are encouraged to collect the necessary information through the population and housing census.

### Working group 3

129. The working group noted the lack of adequate planning at the various stages of the census/survey process with regard to costing, field operations, data processing, and Dissemination ; secondly it observed that the notion of quality itself seemed to be absent from the census/survey plans. The group recommended the following :

#### 1. Planning

- proper planning, coordination and scheduling should be effected using use of effective management tools (flowcharting, critical path analysis, software packages, etc.);
- more resources should be provided to engage adequate and skilled manpower at all levels;
- tabulation plans should be prepared upon identification of survey variables and finalized upon completion of the questionnaire design.;
- good survey designs based on accurate sampling frames;
- adequate pretesting of survey procedures should be made.

#### 2. Field operations

- all elements of the field operations should be properly costed including logistics and provision for reserve staff in case of dropouts;
- field staff should be carefully trained and closely supervised.

#### 3. Data processing

- relevant computer hardware and software as well as proper training should be provided;
- NSOs should ensure consistency checks and edits in advance subdata processing.

#### 4. Analysis

- proper tools should be provided for data analysis;
- subject matter specialists should review the draft report before it is finalized.

#### 5. Dissemination

- publications should be made more user-friendly.

### Discussion of working group reports

130. Following presentation and discussion of the recommendations, participants emphasized the following:

- use of friendly modes of dissemination of statistical products;

- activation of research methods and standards units or their establishment at national statistical offices;
- the need for quality assurance through establishment of a committee or unit;
- with regard to total Quality Management there should be institutionalization of the culture of quality;
- the need for collective responsibility on quality issues and under the active leadership of the head of the statistical office.

Data integration (agenda item 10)

131. Under this agenda item, a representative of the secretariat introduced documents ECA/DISD/STAT/IQAS/98/5 and ECA/DISD/STAT/IQAS/98/6 entitled "Fundamental Principles of Official Statistics" and "Data Integration" respectively.

132. He recalled that the Fundamental Principles of Official Statistics, as set out in decision C (47) of the Economic Commission for Europe were adopted, in April 1994 by the United Nations Statistical Commission, together with a revised preamble. The representative of the secretariat indicated that at its eighth session, the Joint Conference of African Planners, Statisticians and Demographers considered that the principles were of universal significance and outlined a number of steps ECA member States might take to ensure their smooth implementation at the national level. These included, inter-alia:

- (i) adoption and/on harmonization of laws, regulations and measures under which African statistical systems operate;
- (ii) the establishment of adequate mechanisms for the harmonization of statistical norms, concepts and classifications;
- (iii) redefining the priority areas on which national statistical offices should concentrate their efforts, as new data requirements have emerged during the past few years;
- (iv) publicizing, through annual seminars, the main achievements and products of the National Statistical Office;
- (v) organization, by the National Statistical Office, of frequent briefings of the mass media on the correct interpretation and possible uses of the statistical data produced;
- (vi) Entrusting the National Statistical Offices with the responsibility of coordinating all the statistical activities performed within the country; and
- (vii) Promoting further the use of administrative records for generating statistical data.

133. With respect to data integration, after defining the concept and objectives of integration in statistics, the representative of the secretariat dwelt at length on data integrators and integrating frameworks, specific issues to be addressed in household, business and related survey programmes, and institutional arrangements for data integration.

134. In this context, he emphasized that the harmonization of basic concepts, definitions and classifications was a major step towards the establishment of an integrated system of statistics. The framework for this exercise could be the System of National Accounts (SNA) in view of its central position in economic and social statistics as an accounting framework for ensuring the numerical

consistency of data drawn from different sources such as industrial statistics, household surveys, trade statistics, Value Added Tax (VAT) returns and other administrative by-products.

135. The secretariat then presented a decennial timetable for the initiation of an integrated system of business statistics at the national level and drew attention to the increasing role that is played in data integration by "mixed surveys" in the informal sector. These surveys are carried out in two phases : the initial phase involves conducting a basic survey of households which enables the identification of those households engaged in informal production while the second phase consists of an establishment survey that covers all or a sample of the informal production units.

136. Finally the secretariat emphasized that suitable designs and frames, as well as master samples, should be used for integrated household surveys. In order to set up integrated business statistics systems, African countries should develop not only harmonized concepts, definitions and classifications, but also a common register of enterprises and establishments which can be used for all business statistics and also enable the results of different surveys to be related to each other.

137. In the ensuing discussion, participants underscored the importance of the Fundamental Principles of Official Statistics for the improvement of the quality of African statistics and requested ECA to set up appropriate mechanisms for monitoring their implementation in the countries of the region.

138. Clarifications were sought regarding the proposed time frame for the initiation of an integrated system of business statistics, the choice of the statistical unit, the methods of developing a common register of enterprises and establishments, and the items of data to be included in such a register.

139. One participant pointed out that document ECA/DISD/STAT/IQAS/98/6 deals with data integration at the national level only and that efforts should also be made to ensure that the statistical data produced by various institutions at the sub-regional, regional and international levels are fully integrated. He suggested that ECA should play a leading role in the coordination of statistical activities in the region.

140. The secretariat provided clarification on the various points which were raised by the participants. It was emphasized that full-coverage canvassing of recognizable production units was regarded as the most efficient tool for compiling a register of enterprises and establishments. Concerning the items of data to be included in the register, it was indicated that, in addition to the main activity, mailing address and physical location of production units, the proposed full-coverage canvassing of enterprises and establishments should gather information on their size (number of employees or persons engaged), total turnover as well as the composition of their production.

141. On coordination of statistical activities in Africa, the secretariat gave information on the Coordinating Committee on African Statistical Development (CASD) which was established in 1992 following its recommendation in the strategy for the implementation of the Addis Ababa Plan of Action. It was explained that the Committee had over the years undergone restructuring and was currently composed of African countries, regional statistical training centers, bilateral and multilateral agencies and donors, and regional and subregional agencies (as observers). Coordination at the regional level had been achieved through exchange of information, joint execution of activities/projects/programmes, publication of technical materials and reports, annual meetings of the Committee, and through the activities of task forces. It was also mentioned that the secretariat of CASD is located in the DISD at ECA.

### Conclusions and recommendations (agenda item 11)

142. Having deliberated on the quality of official statistics in Africa, taking note of country experiences and the contents of the Manual on Improving the Quality of Official Statistics in Africa, the presentation on best practices and the reports of the working groups, the workshop adopted the following recommendations :

1. Enhance better organisation and co-ordination of NSOs through :
  - review of statistical acts so as to ensure smooth co-ordination of all national statistical activities;
  - the sensitisation of decision makers and political leaders to the benefits of well co-ordinated and quality statistics;
  - the creation of a National Statistical Council, if it is not already in place.
2. Ensure autonomy of NSO's operations and management in order to promote the efficiency and orderly development of national statistical services.
3. Revisit the organisational structures of NSOs to accommodate concerns regarding research, standards, documentation, quality improvement and in-house training.
4. Strengthen funding for NSOs to :
  - provide and reinforce commitment of an unhindered and competent professional management;
  - enable adequate human resources training and development;
  - enable the development of good documentation and central archiving for all stages of statistical operations;
  - engage staff of the necessary background and calibre to enable the successful implementation of different censuses/surveys;
  - improve conditions and schemes of service so as to enable the retention of staff at all levels and raise productivity;
  - enable acquisition of adequate computer equipment, data processing software and logistical support.
5. Improve the quality of statistics through :
  - standardisation and harmonisation of statistical norms, concepts and classifications;
  - acquisition of methodological documents and reports produced by international organisations;
  - exchange of documentation between NSOs so as to share experiences;
  - participation of appropriately specialized professionals in relevant seminars and workshops;
  - intensification of user/producer, producer/supplier and producer/producer interactions through seminars , workshops, conferences, etc;
  - encouragement of regular user-needs assessment;
  - development of up to date and comprehensive business/establishment registers in collaboration with population and housing censuses;
  - ensuring accurate mapping/cartographic work and the construction of accurate frames;

- preparing and implementing an effective quality control program at all stages of the census/survey operations;
  - promotion of the use of GIS;
  - conduct of appropriate surveys on the informal sector.
6. Improve the quality of administrative records from various sources through:
- close collaboration between the NSO and the suppliers of administrative records;
  - computerization;
  - effective coordination and harmonization with other relevant institutions;
  - encouragement of a culture of good documentation and record keeping.
7. NSOs should market and promote their products and services aggressively with a view to encouraging the use of statistics.
8. Develop appreciation for the benefits of quality statistics through:
- seminars for stakeholders;
  - mass and electronic media;
  - introduction of statistics in school curricula;
  - celebration of African Statistics Day every year on November 18 in collaboration with all stakeholders.
9. Build public and user confidence in the services of NSOs through:
- development and implementation of realistic work-plans for all statistical activities and strict adherence to time schedules;
  - maintenance of high quality standards for all statistical products and services;
  - setting and adherence to high report writing standards;
  - transparency and objectivity in NSO's self-evaluations of its own statistical reports;
  - application of user-friendly practices in the release of statistical reports.

143. Upon adoption of its recommendations, the workshop called upon the secretariat to follow-up on their implementation. The workshop further requested the secretariat to send copies of the report of the workshop to heads of National Statistical Offices, and inform CASD and CODI of the recommendations. The workshop also called upon the secretariat to establish a timetable for the implementation of the recommendations.

144. The role of sub-regional organizations in the implementation of the recommendations was raised. In response, the representative of SADC informed the workshop that a report would be made to the SADC Statistics Committee on the recommendations of the workshop. However, the SADC Committee would establish its own strategy.

145. The secretariat observed that the workshop represented only some of the English speaking member States and the French speaking member States were not represented. However, the report and the recommendations of the workshop would be made available to Heads of National Statistical Services, CASD and CODI as requested. It was added that as there was need for further consultations, it was not yet possible to establish a timetable for implementation of the recommendations.



### Evaluation of the workshop (agenda item 12)

146. Forms for evaluation of the workshop were distributed. A report on the evaluation of the workshop is presented as Annex 7.

### Closing (agenda item 13)

147. In her closing address, read by Mr. Dickson Mzumara, the Chief of DISD Ms. Karima Bounemra Ben soltane thanked the participants for their dedication and the long hours they spent discussing how to improve the quality of official statistics. It was imperative that national statistical agencies should aim for very high standards for their products, an objective that was equally important to ECA in its own work. She hoped that the participants would follow up on the recommendations they had adopted and assured them that the secretariat would, on its part, do its best to follow up on those recommendations that applied to it.

148. Finally she explained that partnerships were a vital mechanism through which efficient and sustainable results could be achieved and once again thanked all the partners who were present at the workshop. She paid tribute to the IPC, US Bureau of the Census for participation in the workshop and also for providing valuable support in the form of materials and a resource person. Referring to the OAU and the ADB, she noted that they were members of the common secretariat with ECA and then thanked them for their active participation in the workshop. Finally, but not least, she thanked the representative of SADC for his incisive contributions to the workshop and emphasized that SADC's participation in the workshop was an essential element for the strengthening of ECA's relationship with sub-regional economic organizations which she hoped would be further strengthened.

149. On behalf of the participants, the SADC representative gave a vote of thanks. He stated that all participants were thankful to the ECA particularly for the statistical activities, which it is undertaking, on improving the quality of African statistics in all relevant fields of statistics. He thanked the Chief of DISD for the follow-up her division was going to make on the recommendations of the workshop and for encouraging countries to do the same. He thanked the consultant from ECA and the IPC Bureau of the Census resource person for the informative and excellent presentations they made at the workshop. Finally, he expressed appreciation for the excellent facilities provided by ECA for the workshop.

150. The Chairperson then declared the meeting closed.



**UNITED NATIONS**  
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**ECONOMIC COMMISSION FOR AFRICA**

Regional Workshop on improving the quality of  
African statistics for English-speaking countries

Addis Ababa  
14 – 18 December 1998

**OPENING STATEMENT**

by

**Ms. Karima Bounemra Ben Soltane**  
Chief, Development Information Services Division

**Distinguished participants,  
Ladies and gentlemen,**

It gives me great pleasure, on behalf of the Executive Secretary, Economic Commission for Africa (ECA) and on my own behalf to welcome you all to the Economic Commission for Africa, Addis Ababa and to the Regional Workshop on improving the quality of African statistics.

The organization of this workshop was made possible by the financial support of the Korean Government through a project on Enhancing African Statistical Capacity that is being executed by the Development Information Services Division (DISD) of ECA. Also, the United States Bureau of the Census, International Programs Center (IPC) has provided materials and a resource person for the workshop. Let me take this opportunity to sincerely thank the Korean Government for their financial support and the US Bureau of the Census for their technical support. We consider this contribution of the IPC as a practical demonstration of partnership in general and of the partnership we are strengthening in the context of the Coordinating Committee on African Statistical Development (CASD) in particular.

As you may already be aware, following the restructuring of ECA in January 1997, DISD was established with the responsibility for implementing the subprogramme - Harnessing Information for Development since we are convinced that information plays a central role in the development process. The objective of the restructuring of the ECA is to focus efforts and increase synergies to serve Africa better. Thus, under the new structure, DISD implements in an integrated manner, activities in the area of statistics, information and communications technologies, database development and management, geoinformation systems, and library services.

This workshop is particularly important for us since it is the first of its kind to address issues on quality of African statistics. The objective of the workshop is to contribute to the improvement of African statistics - by creating awareness on the importance of improving the quality of statistical information - and promote measures that could be adopted to improve the quality of official statistics and enhance their role in decision making.

It is my hope, that at the end of the workshop, your knowledge on enhancing the accuracy, reliability, timeliness, and relevance will have been increased and in particular the importance of minimizing errors in data will have been re-emphasized.

The need for quality control to minimize the different types of errors that can affect the quality of data is crucial at all the stages of statistical operations. Errors can occur at the planning, collection, processing and analysis stages as well as during the publication and dissemination stages. Errors in data may be due to many causes including faulty concepts and definitions, faulty selection of individuals or units, poor observation or reporting of information or measurement, faulty computer programming, poor presentation and publication, inadequate training of office and field staff, and faulty design of statistical work.

Indeed if the quality of statistical information is poor, the data can mislead decision-makers and planners and result in costly mistakes and faulty plans for the

socio-economic development of a country. This is why every effort must be made to ensure that all stages of statistical operations are conducted with minimal errors.

The issue of quality assurance is equally important for statistical work particularly as it relates to dissemination of statistical products through publications and other electronic media, such as Web sites and CD-ROMs. Two areas of quality assurance are particularly important namely relevance and accuracy.

On relevance, it has already been recommended in the Strategy for the implementation of the Addis Ababa Plan of Action for Statistical Development in Africa in the 1990s, that needs assessment and strategy development exercises should be undertaken by all countries. Needs assessment exercises ensure involvement of the clients at the planning and conceptualization stages of statistical activities and the provision to the users of the results they need and in the desired form.

On accuracy there is need to ensure that the contents of publications are accurate, comparable, consistent, reliable, and delivered timely. The conduct of peer reviews of publications should be considered an integral part of statistical production.

### **Distinguished participants,**

You will recall that the importance of disseminating good quality statistics for decision making purposes was recognized and recommended in the Addis Ababa Plan of Action for Statistical Development in Africa in the 1990s. Consequently, national statistical offices were requested to consider setting up organizational units on methods and standards in order to study ways and means of improving the quality of their statistics. These organizational units have already been established in some African countries. It is however important to emphasize here that those countries which have not yet established these units should consider doing so during periodic reviews of the organizational structure of their offices.

The quality of statistics can be assessed in many ways. I have already mentioned some of the criteria, such as relevance and accuracy. Other assessment criteria may include uniformity of data with respect to time reference and completeness with respect to coverage of the population or sample.

It will be recalled that during the 1980s, in most African countries, the production of good quality statistics had deteriorated mainly due to factors such as inadequate financial resources for production of statistics, lack of modern equipment and supplies for production and dissemination of data, and predominance of supply instead of demand driven approach to the production of statistics.

It is our hope that during the coming years, national statistical services will address these issues more seriously and that the quality of African statistics will improve considerably.

### **Ladies and gentlemen,**

I have no doubt that during this workshop you will achieve a number of things:

- firstly you will share experiences on how you have addressed issues of data quality in your countries both through surveys and administrative records data collection, processing and dissemination;
- secondly you will have the opportunity of reviewing sampling as well as nonsampling errors and their measurement;
- thirdly you will consider various techniques for quality control and reduction of errors to improve the quality of statistical information;
- fourthly you will have the opportunity to learn, from the experiences of the US Bureau of the Census, on best practices in this field;
- finally you will discuss data integration as one aspect of improving data quality.

This workshop is a demonstration of our response to the recommendations made by African countries in the Addis Ababa Plan of Action. In that context, we look forward to the recommendations that you will make to improve and advance quality of African statistical information, particularly in view of its importance for planning and policy formulation in the advancement of African economies.

**Distinguished participants,  
Ladies and gentlemen,**

Before I conclude this statement, I would like to take this opportunity to again express my gratitude and appreciation to the Korean Government for the financial support. I would also like to thank the US Bureau of the Census for the materials provided and the resource person for the workshop. I would like to recognize Ms. Rebecca Sauer and to thank her for her valuable contribution to the workshop as a resource person.

I would also want to thank the representatives of the Organization of African Unity (OAU), the Southern African Development Community (SADC) and the African Development Bank (ADB) for their participation in this workshop. We appreciate their support and the spirit of co-operation which they have shown and their commitment to addressing this very important subject, the quality of African Statistics.

My profound appreciation to our consultant, professor Ayenew Ejigou, for the thorough work he has undertaken, first in the missions to the countries to collect data on national experiences and second in preparing the manual for use during this workshop.

I know you have a heavy agenda before you, hence I do not want to take more of your time. I, therefore, wish you a successful workshop. I also hope that during the time of your visit to Addis Ababa, you will have time to visit sites of interest in this historic city of Addis Ababa.

It is my honour and duty now to declare this Regional Workshop on improving the quality of African statistics open.

## **RESULTS OF THE EVALUATION OF THE REGIONAL WORKSHOP**

1. The workshop was attended by 21 participants fifteen of whom were nominated by their respective governments. The participants came from the following countries: Botswana, Ethiopia, Gambia, Malawi, Mauritius, Mozambique, Namibia, Nigeria, Seychelles, Swaziland, South Africa, Tanzania, Uganda and Zambia. Only country participants were requested to complete the evaluation form. Twelve of country participants filled and returned their evaluation forms. The analysis below is based on the answers of the 12 responses.

2. On the organization of the workshop, 75 per cent of the respondents were of the opinion that the workshop was announced sufficiently in advance and 25 per cent felt it was announced too late. Regarding the duration of the workshop, all respondents were of the view that the duration was just right. Also, 92 per cent of the respondents were of the view that the daily working hours were just right, while 8 per cent felt that the daily working hours were too demanding. Concerning facilities for the meeting, 67 per cent of the respondents viewed them as very good while 33 per cent were of the opinion that they were good.

3. The respondents (92 per cent) were of the view that the subjects included were relevant, except one participant (8 per cent) who was of the view that they were reasonably relevant. On subjects respondents would have liked to be included in the agenda, mention was made of the following: Estimation of errors introduced after including informal sector activities in the official statistics; extent to which statistical offices can carry out analysis of data collected during censuses, surveys, etc; in depth discussion on being or becoming an autonomous statistical office, and dissemination policy within statistical offices.

4. The documentation for the workshop was considered as sufficient by all the respondents. Thirty three per cent of the respondents indicated that the documentation was very clear while sixty seven per cent were of the view that the documentation was reasonable.

5. Discussions were viewed by all participants to have been very informative, practical and feasible and they recommended that such workshops should be organized periodically and conclusions and recommendations made should be followed upon.

6. Respondents were of the view that the workshop fully achieved its objectives. One respondent stated that the programme of implementation of the recommendations should be put in place soon.

7. On the greatest problems likely to be faced in putting into practice knowledge or skills acquired during the workshop, 75 percent of the respondents were of the view that lack of financial resources was their greatest problem while 50 per cent were of the opinion that the lack of human resources was their greatest problem. One respondent indicated that acceptance by colleagues and supervisors was the greatest problem.

financial resources was their greatest problem while 50 per cent were of the opinion that the lack of human resources was their greatest problem. One respondent indicated that acceptance by colleagues and supervisors was the greatest problem.

8. A number of suggestions were made by eighteen per cent of respondents on themes for improving the quality of African statistics. The remaining eighty-two percent of the respondents, made proposals for improving the quality of African Statistics:

Themes for improving the quality of African statistics included:

- data analysis and utilization;
- data collection in the informal sector;
- integrated surveys;
- formally creating and maintaining systems conducive to good statistical practices in National Statistical Offices and NGOs;
- harmonization of concepts, definitions and standards;
- intensification of the implementation of the recommendations, in the field of statistics, issued by relevant international organizations.

Proposals for improving the quality of African statistics included:

- exchange and sharing of good experiences;
- follow-up on the recommendations of the workshop;
- enhancement of quality control measures at each stage of a survey or census;
- emphasis in the application of Information Technology in statistical production process;
- African governments' commitments in establishing a scheme for continuous improvement of the quality of national statistics;
- frequent or periodic organization of such workshops;
- adoption and/or adaptation of recommendations issued by the international organizations;
- facilitating professional statisticians upgrading of skills by removing or reducing taxes on books and magazines, etc.

## **Provisional Agenda**

1. Registration
2. Opening address
3. Election of officers
4. Adoption of the agenda
5. Country experiences on improving the quality of official statistics
6. The quality of official statistics in some African countries: an overview
7. Factors affecting the quality of official statistics
8. Classification of errors
9. Census and survey errors and their measurement
10. Quality control and error reduction
  - 10.1 Planning and preparation
  - 10.2 Control of Field operations
  - 10.3 Control of data processing operations
11. Best practices in improving the quality of data
12. Data integration
13. Conclusion and recommendations
14. Evaluation of the workshop
15. Any other business
16. Closing



### Annotations to the Provisional Agenda

2. Opening address

The Director of the Development Information Services Division (DISD) or her representative will address the workshop.

3. Election of officers

A Chairperson, a Vice-Chairperson and a Rapporteur will be elected for the meeting.

4. Adoption of the agenda

The meeting will review the agenda and/or the sequence in which the items should be discussed and make any necessary revisions. The arrangements for the organization of the meeting including the timetable will also be agreed upon.

Documents:

- |   |                                       |                             |
|---|---------------------------------------|-----------------------------|
| - | Provisional agenda                    | ECA/DISD/STAT/IQAS/98/1     |
| - | Provisional timetable                 | ECA/DISD/STAT/IAQS/98/inf.2 |
| - | Annotations to the provisional agenda | ECA/DISD/STAT/IQAS/98/Add.1 |

5. Country practices on improving the quality of official statistics

Each participant will make a presentation on the practices in his or her country on improving the quality of official statistics. Participants will discuss the issues raised for each presentation.

Documents provided by participants on country experiences will be circulated.

6. The quality of official statistics in some African countries: an overview

Under this agenda item a presentation will be made on the quality of official statistics in selected African countries. The presentation will also highlight salient features from the country presentations. (Documents: (1) ECA/DISD/STAT/IQAS/98/2; (2) country presentations).

7. Factors affecting the quality of official statistics

Under this agenda item the meeting will discuss the factors which affect the quality of official statistics. The meeting will then break into working group sessions and report back.

- Documents: (1) ECA/DISD/STAT/IQAS/98/2  
(Paragraphs 1.1 to 1.84)  
(2) Country presentations

8. Classification of errors and their measurement

The meeting will review the classification of errors, and will have an overview of sampling and non-sampling errors. The meeting will then break into working group sessions and report back.

- Documents: (1) ECA/DISD/STAT/IQAS/98/2  
(Paragraphs 2.1 to 3.18 and exercises)  
(2) Country presentations

9. Census and survey errors and their measurement

The meeting will consider the measurement of non-sampling errors and then break into working groups for practical exercises. The working groups will then report back to the main meeting.

- Documents: (1) ECA/DISD/STAT/IQAS/98/2  
(Paragraphs 5.1 to 5.41 and exercises)  
(2) Country presentations

10&11. Quality control and error reduction

The meeting will consider methods for quality control and error reduction. Best practices for improving data quality through the various phases of planning and implementing censuses and surveys including questionnaire design, field operations and quality control will be presented.

- Documents: (1) ECA/DISD/STAT/IQAS/98/2  
(Paragraphs 6.1 to 6.59)  
(2) ECA/DISD/STAT/IQAS/98/3  
(3) ECA/DISD/STAT/IQAS/98/4

12. Data integration

Use of common concepts, definitions and classification and the role of integrated systems in enhancing the quality of official statistics will be considered. The Fundamental principles of official statistics will also be presented.

- Documents: (1) ECA/DISD/STAT/IQAS/98/5  
(2) ECA/DISD/STAT/IQAS/98/6

### Timetable

<u>Day, Date and Time</u>	<u>Activities</u>
<b>Monday, 14 December</b>	
08:00-10:00	• Registration of participants
10:30-11:00	• Opening statement
11:00-11:15	• Tea break
11:15-13:00	• Election of officers
	• Tea break
	• Adoption of Agenda
	• Organizational matters
13:00-14:30	• Lunch break
14:30-16:00	• National experiences: quality of national statistics
16:00-16:15	• Tea break
16:30-17:30	• National experiences: quality of national statistics (Continued)
<b>Tuesday, 15 December</b>	
09:00-10:30	• National experiences: quality of national statistics (Continued)
10:30-10:45	• Tea break
10:45-12:30	• National experiences: quality of national statistics (Continued)
13:00-15:00	• Lunch break
15:00-16:30	• Overview of African official statistics (ECA)
16:00-16:15	• Tea break
16:30-17:20	• Factors affecting the quality of official statistics (ECA)
17:20-17:30	• Formation of Working Groups
<b>Wednesday, 16 December</b>	
9:00-10:30	• Working group discussions on factors affecting the quality of official statistics
10:30-10:45	• Break
10:45-12:30	• Reports of Working Groups
13:00-14:30	• Lunch break
14:30-15:30	• Classification of errors (ECA)
15:30-15:45	• Tea break
15:45-16:45	• Measurement of nonsampling errors (ECA)
16:45-17:30	• Error reduction methods (ECA)

<u>Day, Date, and Time</u>	<u>Activities</u>
Thursday, 17 December	
9:00-10:30	<ul style="list-style-type: none"><li>• Best practices (IPC, US Bureau of the Census):<ul style="list-style-type: none"><li>(a) Overview of data quality</li><li>(b) Data quality in the planning phase</li></ul></li></ul>
10:30-10:45	<ul style="list-style-type: none"><li>• Tea break</li></ul>
10:45-11:45	<ul style="list-style-type: none"><li>• Error reduction methods (ECA)</li></ul>
11:00-12:00	<ul style="list-style-type: none"><li>• Data integration (ECA)</li></ul>
12:00-13:00	<ul style="list-style-type: none"><li>• Best practices (IPC, US Bureau of the Census):(continued)</li></ul>
13:00-14:30	<ul style="list-style-type: none"><li>• Lunch break</li></ul>
Friday, 18 December	
9:00-15:00	<ul style="list-style-type: none"><li>• Free</li></ul>
15:00-17:30	<ul style="list-style-type: none"><li>• Summary of recommendations</li><li>• Evaluation (ECA)</li><li>• Closing (ECA)</li></ul>

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## FACTORS AFFECTING THE QUALITY OF OFFICIAL STATISTICS

1. The quality of official statistics can be affected by many factors. The factors range from institutional to quality of personnel working at the statistical office.
2. In general, non-response, response/measurement, and coverage and content errors can affect the quality of official statistics.
3. There is also the issue of sampling and non-sampling errors.
4. Sampling error arises from the sampling design and is due to only a sample being used to estimate the population parameters. This error is inherent and unavoidable in any and every sampling scheme. The smaller the sampling error the better the representation of the population. Increasing the sample size can reduce it. Sampling error is inversely proportional to the square root of the sample size.
5. Non-sampling error arises from many other factors among them: failure to measure some of the selected units; observational errors due to defective measurement techniques; errors introduced in editing, coding and tabulation of results. The non-sampling error is said to increase with increase in sample size.
6. Characteristics of good quality statistics include relevance, accuracy (reliability, consistency), timeliness, comparability, availability and clarity.

### Relevance

- lack of interaction with users/other producers of statistics;
- non assessment of user needs;
- predominance of supply instead of demand driven approaches to the production of statistics use;
- users themselves appear to avoid or ignore data rather than actively seeking to use it;
- lack of statistical culture of the public;
- Failure to clarify the purpose of the investigation.

### Accuracy and consistency

- faulty selection of individuals ;
- faulty concepts and definitions;
- poor/inadequate training of field and office staff;
- poor/inadequate supervision of field and office staff and operations;
- reference period (long poor results, short better results);
- respondents may not be sufficiently informed to be capable to give quality data;



- vague questions;
- lack of pre-testing of questionnaires;
- observation/recording errors;
- editing and tabulation errors;
- inadequate source and lack of availability of information;
- intentional and unintentional biases;
- falsification of numerical statements;
- presentation and publication errors.

### Timeliness

- delays in the implementation of statistical operations;
- data processing delays;
- printing delays;
- poor logistics at the various stages of statistical operations;
- rigidity/inflexibility in dissemination techniques;
- priority setting.

### Comparability (coherence)

- lack of uniformity with respect to concepts, definitions and methods;
- variation in time reference;
- incomplete coverage;
- methodology for data collection and analysis (interview or mail survey).

### Availability

- possessiveness/proprietorship;
- bureaucracy;
- poor dissemination techniques/policy
- confidentiality.

### Clarity

- poor report writing;
- lack of metadata.

### Other factors affecting the quality of statistics are:

- inadequate organizational structures;
- faulty overall design of statistical work;
- inadequate financial resources;
- inadequate organizational structures/lack of organizational units on methods and standards (research);

- voluminous questionnaires;
- lack of analysis of data;
- lack of or inadequate coordination/collaboration/cooperation in statistical production;
- lack of (shortage) of skillful staff with limited experience;
- nonexistence of peer reviews of statistical products;
- lack of quality control;
- inadequate sampling frames.

Factors affecting the quality of administrative records

- lack of control of sources of data;
- poorly trained (untrained) recorders;
- lack of awareness of the importance of the data;
- poorly designed questionnaires;
- inadequate or lack of concepts and definitions;
- coverage errors.

List of Documents

1.	Provisional Agenda	ECA/DISD/STAT/IQAS/98/1
2.	Annotations to the Provisional Agenda	ECA/DISD/STAT/IQAS/98/Add.1
3.	Provisional list of participants	ECA/DISD/STAT/IQAS/98/inf.1
4.	Provisional timetable	ECA/DISD/STAT/IQAS/98/inf.2
5.	Provisional list of documents	ECA/DISD/STAT/IQAS/98/inf.3
6.	General information for the participants	ECA/DISD/STAT/IQAS/98/inf.4
7.	Evaluation Form	ECA/DISD/STAT/IQAS/98/inf.5
8.	Manual on Improving the Quality of Statistics in Africa	ECA/DISD/STAT/IQAS/98/2
9.	The Graphical Analysis of data	ECA/DISD/STAT/IQAS/98/3
10.	Protocol for Pretesting Demographic Surveys at the Census Bureau	ECA/DISD/STAT/IQAS/98/4
11.	Fundamental Principles of Official Statistics	ECA/DISD/STAT/IQAS/98/5
12.	Data Integration	ECA/DISD/STAT/IQAS/98/6
13.	Evaluating Censuses of Population and Housing	ECA/DISD/STAT/IQAS/98/7
14.	Standards for Discussion, Presentation of Errors in Data	ECA/DISD/STAT/IQAS/98/8
15.	Report of the Workshop	ECA/DISD/STAT/IQAS/98/9