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CO-ORDINATION AND INTEGRATION OF INTERNATIONAL STATISTICAL PROGRAMMES

Electronic Data Processing and Data Banks UN/SA COLLECTION

Report of the Secretary-General

C O N T E N T S

	<u>Paragraphs</u>
INTRODUCTION	1
I. ELECTRONIC DATA PROCESSING FACILITIES AT GENEVA AND NEW YORK	2 - 13
A. International Computing Centre, Geneva	2 - 11
B. New York Computing Centre	12 - 13
II. DATA BANKS OF ECONOMIC AND SOCIAL STATISTICS	14 - 21
III. MATTERS OF ORGANIZATION	22 - 32
A. The forum to deal with users' interests	22 - 25
B. The work of IOB	26 - 28
C. Other questions	29 - 32

INTRCDUCTION

1. This report describes the latest developments in connexion with the arrangements for electronic data processing at the International Computing Centre (ICC) at Geneva and at the New York Computing Centre (NYCC), as well as the data bases of economic and social statistics of the United Nations family. It also contains a review of organizational matters.

I. ELECTRONIC DATA PROCESSING FACILITIES AT GENEVA AND NEW YORK

A. International Computing Centre, Geneva

2. During the course of 1971, a review was made of the computer equipment at ICC with the objective of providing the most advanced and economical devices for its users. In 1972, the central computer processing unit was changed from an IBM model 360/65 to a model 370/155 computer. It is ICC policy that no equipment changes can be made if they would cause any user to change its application programmes. The ICC is studying the feasibility of photo-composing on the computer in a format that can be used directly for offset printing. This would not only substantially reduce the production costs of publications but also reduce the time-lag between data availability and publication.
3. Another field of current interest is how best to serve the needs of remote users through terminals. A co-ordinated approach is required, and using the UNCTAD/ECE remote terminal as a model, a generalized procedure has been developed. A variety of high-speed terminals may now be linked to the ICC central processing unit over telephone lines with a minimum increase in costs. These terminals can be used both as concentrators for low-speed devices such as video inquiry units, or for remote batch processing.
4. The ICC has developed a procedure which provides statistics on equipment usage and costs for each component (personnel, equipment and supplies) required for each job carried out at the Centre. Costings are prepared on a weekly and monthly basis providing the degree of detail or summarization the user needs. In addition, every job processed on the computer has the cost of the run printed on the output.
5. The ICC has to assure all users that their data files will be protected from unauthorized modification and from accidental (or intentional) disclosure to unauthorized persons. This is done by using normal control procedures such as separating responsibilities among its personnel and physical security measures whereby unauthorized persons are not permitted to enter the computer environment and also by combining these methods with additional capabilities built into the computing system.
6. By the end of 1971, the United Nations had become the major user of the ICC computing facilities. In order to prepare the statistics for processing by ICC and to control and check work done at Geneva, the Statistical Office of the Department of Economic and Social Affairs of the United Nations Secretariat, has a small staff outposted to Geneva. This staff processes international trade statistics received from Governments and converts them to a standardized format for inclusion in the statistical data banks; ICC is responsible for processing part of these statistics. It furnishes most of the electronic data processing services in respect of the quarterly and annual external trade services that Governments report to the United Nations on tape, punch cards etc.
7. The ICC also tabulates national accounting statistics, such as estimating missing data, compiling average annual rates of growth, index numbers and ratios of aggregates and delineating the functional relationships and correlations between them.

Print-outs are also prepared in respect of volume II of the United Nations Yearbook of National Accounts Statistics. The work for the United Nations Committee on Contributions, which met at Geneva in 1972, was also programmed and processed by ICC at Geneva. The Centre also processes international transport data.

8. Consideration is being given to shifting to ICC early in 1973 more of the electronic data processing required by the Statistical Office. The transfer from Headquarters to ICC of practically all electronic computer work on external trade data now being furnished by the New York Computing Centre (NYCC) and of work on annual demographic statistics for the Demographic Yearbook is planned. These two computer applications are the large-scale Statistical Office requirements for electronic computer services that have not yet been shifted to ICC.
9. The United Nations Conference on Trade and Development (UNCTAD) and the Economic Commission for Europe have used the computer for econometric work and for statistical analysis. The computer has been used to help build and test econometric models of markets for major commodities, such as rubber and tea, of interest to developing countries. Extensive use has been made of international trade data recorded on tape to produce analytical tables (such as presenting growth rates, market shares and other relevant information) for use in a wide variety of reports. The UNCTAD has also used the computer to develop a system of documentation control and a personnel information system.
10. The World Health Organization (WHO), the second major participant in ICC, has made use of the ICC data preparation and computer services for all of its computer applications. These applications lie mainly in the areas of health statistics, research, information retrieval, library, drug monitoring, the distribution and sales of WHO publications, and for administration purposes. As was envisaged prior to the establishment of ICC, in order to ensure that development work would be carried out with a full understanding of the organization's specific needs, the systems analysis and programming functions for the above work are being undertaken by WHO.
11. The United Nations Development Programme (UNDP), the third major participant in ICC, has continuously extended its use of the Centre. It is implementing the programmes for the first part of its new reporting system covering financial reports to be produced bi-monthly, monthly and quarterly through ICC. The periodical processing will be based upon input data to be derived from UNDP headquarters and the executing agencies. It was anticipated that the system would become operational in April 1972. The specifications for an extended version of the financial reporting system and systems specifications for the second part of the UNDP reporting system covering substantive data reported from the field are under preparation by the Management Information Services and will be submitted to ICC for programming in mid-1972.

B. New York Computing Centre

12. In 1971 the computer and related machinery requirements of NYCC were reviewed from the standpoint of determining what changes should be made for inclusion in the 1972 revised budget estimates. In accordance with the results of this review and the actions taken by the General Assembly in respect of electronic data processing, the central processor of the IBM 360/40 computer was exchanged in April 1972 for that of an IBM 370/145 with a larger internal storage capacity. This exchange of central processors has several advantages:

- (a) The most advanced central processor available is being provided to NYCC with no increase in rental charges or reprogramming of existing applications;
- (b) Future growth in computer costs can be controlled through a review of requests for smaller incremental increases as opposed to larger quantum increases;
- (c) Approximately 25 to 30 per cent more work can be processed on the computer with the new central processor; and
- (d) There will be no need for a third shift of computer operations staff, and processing on weekends will be considerably reduced.

13. The NYCC remained an important facility for processing international statistics. Electronic data processing of the following type is being carried out for the Statistical Office of the United Nations by the Centre in respect of:

- (a) Special tabulations of trade and transport statistics;
- (b) Industrial statistics;
- (c) National accounts statistics;
- (d) Cost-of-living statistics;
- (e) Demographic statistics; and
- (f) Special projects including the International Standard Industrial Classification (ISIC) and the Standard International Trade Classification (SITC), International Comparison Project etc.

II. DATA BANKS OF ECONOMIC AND SOCIAL STATISTICS

14. The organization of a set of economic and social statistics into a co-ordinated and integrated body of data requires that the system of data collection as well as the data to be stored in the bank should be carefully and continuously controlled by trained personnel with high qualifications in economic and social statistics.

15. The stored data should meet the statistical needs not only of the United Nations system but also those of Governments, as they bear the main financial burdens of gathering and supplying the data. It is of fundamental importance that the data in the bases should be economically collected, stored and maintained in light of the statistical needs and wishes of Governments and of international organizations.

16. The concepts, definitions and classification of the stored data, and the format in which the series are stored, must be consistent and co-ordinated. This requirement applies not only to individual data banks but also to the various international data banks if data from the banks are to be interchanged or used jointly (for example data pertaining to trade and production).

17. Data which are to be stored in the data bases of the Statistical Office of the United Nations and the statistical services of the specialized agencies must be carefully prepared by the statistical personnel in those offices. In general, data supplied by countries must be adjusted to the standard definitions and classifications

used; the data must be carefully checked in order to discover internal and other inconsistencies, such as inconsistencies in relation to the series previously supplied, and the data must be put into the proper format for entry into the data bases. Experience shows that the statistical operations involved in maintaining data bases are indeed quite large.

18. The Statistical Commission's Working Group on International Statistical Programmes and Co-ordination, at its third session (September 1971, Geneva), considered the project of the Statistical Office to build and maintain an inventory of international data banks of economic and social statistics. The Working Group felt that "This inventory would be of considerable value to the Statistical Commission in the work on co-ordination of the statistical activities of the United Nations family. It would also be of assistance in informing national statistical offices and other potential users of the data banks concerning the available information" (see E/CN.3/419, para. 21).

19. A questionnaire on data bases of economic and social statistics has been prepared by the Statistical Office and is designed to provide the following information:

(a) Availability to various types of users of the economic and social statistics held by international organizations, including information concerning costs;

(b) Description of the statistics held in the data bases, including a description of the nature of the economic and social statistics held in the data base files, type of classification or standard used, type of geographical coverage, period of reference, frequency of the data and publications which are based on or contain information from the files;

(c) Technical description of the data base files, including the number and length of logical records, type of logical records, organization of the files, access method, programming languages used etc.;

(d) Technical description of the structure of the logical records in the file, including a description of the fields; and

(e) The main characteristics and configuration of the computer (or computers) which maintain the data bases.

20. The Sub-Committee on Statistical Activities of the Administrative Committee on Co-ordination, at its sixth session (February 1972, Geneva), reviewed the draft questionnaire and considered that the type of information sought was required for purposes of co-ordination and the exchange of computerized economic and social statistics among the organizations concerned and for purposes of a directory of these data to inform potential national users of the available computerized data.

21. A revised version of the questionnaire, incorporating the views of the specialized agencies and other bodies, is being prepared and will be circulated to the organizations in the United Nations system and to the regional economic commissions for completion. After the results have been tabulated (this will provide an additional opportunity to analyse the questionnaire), questionnaires will be sent to Member States for completion. It is expected that a detailed inventory of data bases of economic and social statistics will be available for co-ordination and other purposes in 1973.

III. MATTERS OF ORGANIZATION

A. The forum to deal with users' interests

22. The Conference of European Statisticians, at its nineteenth plenary session (Geneva, June 1971), suggested that a Users' Committee of Government representatives should be established in order to foster the access of Member States to the economic and social statistics gathered by the United Nations family.

23. At its third session, the Working Group on International Statistical Programmes and Co-ordination recognized as one of its primary functions the consideration of "current questions of the organization, policies, arrangements and priorities for the electronic data processing of economic and social statistics, including data banks" (see E/CH.3/419, para. 56iii).

24. The Sub-Committee on Statistical Activities at its sixth session recalled the suggestion of the Conference in connexion with a Users' Committee and access to data bases of economic and social statistics and agreed with the view expressed by the Working Group that the latter was the appropriate forum to deal with these matters.

25. The Working Group at its third session expressed the view that "at subsequent sessions, it should receive reports on the organization, policies and arrangements for the electronic data processing of economic and social statistics in the United Nations and on the adequacy of the facilities provided for this work. These policies, arrangements and facilities were constantly evolving and the meetings of the Statistical Commission were too infrequent for bringing to bear on the consideration of these matters, the implications and consequences for the statistical services of the United Nations" (see E/CH.3/419, para. 15). In this connexion, attention is drawn to the formulation of the functions of the Working Group contained in the report of its third session (see E/CH.3/419, para. 56).

B. The work of IOB

26. The Inter-Organization Board for Information Systems and Related Activities (IOB), at its third session (February 1972, Geneva), decided to establish an informal Working Party which would draw up possible terms of reference for IOB's work in connexion with data banks of economic and social statistics. Messrs. Mosak (United Nations), Muller (IBRD), Shapiro (UNDP), Wrigley (FAO) and the Director of IOB secretariat would directly participate in this work.

27. At the sixth session of the Sub-Committee on Statistical Activities, during discussions on data banks of economic and social statistics, it was considered that the main interest of IOB was in (a) the technical aspects of data banks, for example, computer-logical records, the organization of the files, file storage devices and access methods, and (b) the formulation of methods and techniques of using the data banks of economic and social statistics in dealing with administrative and management questions such as planning-programming-budgeting systems (PPBS) and personnel require-

28. The questionnaire on data bases of economic and social statistics mentioned in paragraph 19 should be of assistance to ICB in the area of co-ordination and interchange of computerized economic and social data for purposes of administration and management.

C. Other questions

29. Attention is drawn to Economic and Social Council resolution 1566(L) in which the Council "Recognizes the interest of the Statistical Commission and the Statistical Office in matters related to the use of computers in the United Nations system and draws attention to this field where further co-ordination is likely to be most required" (para. 5).

30. It is recalled that the Working Group on International Statistical Programmes and Co-ordination, at its third session, "considered it essential that the Statistical Office should participate in the Management Committee of the ICC, Geneva, and in any similar arrangements established for NYCC. This should be of considerable assistance in ensuring that electronic data processing of statistics required nationally and internationally, was adequately provided for, given the appropriate attention and assigned due high priority" (see E/CN.3/419, para. 14). Satisfactory arrangements have been made to ensure the participation of the Statistical Office in the United Nations activities concerning the Management Committee of the ICC, Geneva.

31. The Secretary-General, in his report on electronic data processing submitted for the budget estimates for 1972 (A/C.5/1378), concluded that in view of the growing scope and complexity of the electronic data processing activity, within the United Nations Secretariat as a whole, the first priority was to establish a mechanism for central management and control. The General Assembly at its twenty-sixth session, approved the creation of an Electronic Data Processing and Information Systems Office in the Office for Administration and Management of the United Nations Secretariat. The recruitment of a director of the new office is being undertaken, though considerable difficulties are being experienced in this respect.

32. Finally, attention is drawn to the discussion of data processing in the relevant portions of the reports submitted to the Commission (E/CN.3/424 and E/CN.3/439) on technical assistance activities in statistics and on publications of statistics.

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