



STATISTICAL PAPERS

Series **M** No. **71** (Part I)

**RECOMMENDATIONS FOR THE
1983 WORLD PROGRAMME
OF INDUSTRIAL STATISTICS**

Part One
General statistical objectives

UNITED NATIONS

DEPARTMENT OF INTERNATIONAL ECONOMIC AND SOCIAL AFFAIRS
STATISTICAL OFFICE

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1983 WORLD PROGRAMME
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UNITED NATIONS
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INTRODUCTION

A. History of the recommendations

1. At its twentieth session, in 1979, the Statistical Commission endorsed the concept of a 1983 World Programme of Industrial Statistics and requested the Secretary-General "to prepare a complete set of draft recommendations for the Programme for submission to the Commission at its twenty-first session". The Commission asked that, prior to submission, the document be distributed "for comment to national statistical authorities and interested regional and international organizations". 1/

2. A draft of the present recommendations was prepared by the Statistical Office of the United Nations and circulated in early 1980 to the regional commissions, the United Nations Industrial Development Organization (UNIDO), the World Bank and other interested international organizations, as well as to selected national statistical offices and individual experts. The comments and suggestions received were used in the preparation of the final draft submitted to the Statistical Commission. The Commission reviewed and approved the 1983 World Programme at its twenty-first session in January 1981, subject to the comments and suggestions made during the discussion of the item, and requested the Secretary-General to publish the revised document and distribute it to countries. 2/ On 4 May 1981, the Economic and Social Council adopted resolution 1981/1, on the recommendation of the Statistical Commission at its twenty-first session. In that resolution, the Council:

"1. Reconfirms the value and importance of the principles of the 1983 World Programme of Industrial Statistics as a means of accelerating the development of industrial statistics programmes in developing countries to provide reliable and timely information on their progress in industrialization;

"2. Recommends that provision should be made for technical assistance to permit developing countries to participate in the Programme and urges the multilateral and bilateral agencies to provide resources, within the framework of their technical co-operation activities, to help developing countries implement their plans for the Programme;

1/ Official Records of the Economic and Social Council, 1979, Supplement No. 3 (E/1979/23), para. 13 (b) (iii) and (i).

2/ Ibid., 1981, Supplement No. 2 (E/1981/12), para. 13.

"3. Strongly urges that all countries should compile basic data on industry for 1983 or a year close to 1983, taking into account as far as possible the international recommendations on this subject, and recommends that developing countries should avail themselves of technical co-operation whenever necessary in order to complete the Programme successfully;

"4. Requests the Secretary-General, in close co-operation with the regional commissions, the specialized agencies, the United Nations Industrial Development Organization and other multilateral and bilateral agencies, to co-ordinate technical co-operation activities in support of the Programme;

"5. Further requests the Secretary-General, in collaboration with the above-mentioned organizations, to submit a progress report to the Statistical Commission at its twenty-second session."

B. Nature and purpose of the Programme

3. The 1983 World Programme of Industrial Statistics is the third in a series sponsored every 10 years by the United Nations Statistical Commission. Results obtained from the 1973 Programme have been published by the Statistical Office of the United Nations Secretariat. 3/ Fifty-four countries provided data qualifying for publication, more than half of which came from a continuing annual inquiry rather than from an infrequent census.

4. The main function of these programmes is to encourage the orderly development of national inquiries into the structure and activity of the industrial sector. Bench-mark inquiries of this kind have been provided for in the international recommendations for the compilation of industrial statistics, 4/ and a 10-year interval between such inquiries has been recommended by the Statistical Commission as an appropriate minimum frequency. In the international recommendations, such bench-mark inquiries are regarded as an essential part of an integrated system of national industrial inquiries.

3/ The 1973 World Programme of Industrial Statistics. Summary of Data from Selected Countries, Statistical Papers, Series P, No. 15 (United Nations publication, Sales No. E.79.XVII.3).

4/ International Recommendations for Industrial Statistics, Statistical Papers, Series M, No. 48 (United Nations publication, Sales No. E.68.XVII.10).

5. A second objective of the 1983 World Programme is to guide national activity in industrial census-taking, with a view to broadening the scope and improving the comparability of the statistics on industry available at the international level. Provision is made in the Programme not only for the collection of information according to uniform procedures but also for the compilation of this information in a uniform manner and for its subsequent publication in standard form. The international recommendations have the goal of improving both the quality and the timeliness of statistical data.

6. Both functions of the Programme are ultimately directed at the improvement of the flow of information on industrial activity and structure as a means of accelerating economic and social development. Requirements for this purpose are expressed at the national level, both in terms of arrays of national data and in terms of compilations of comparative data for other countries, for regions and other groupings of countries, and for the world as a whole. At the regional and international levels, similar needs are expressed by the various bodies concerned with general economic planning and development, as well as by those bodies, such as UNIDO, which are concerned more directly with industrial activity.

7. Policy decisions to promote specific industries, including those involving direct governmental or private sector action, are of great economic significance for the countries involved. It is recognized that sound decisions depend upon good analysis, that good analysis requires accurate data, and that in many developing countries adequate industrial data have not been available. The Economic and Social Council and Statistical Commission of the United Nations, as well as various regional and national organizations, have endorsed actions to improve industrial statistics through the promulgation of international standards and recommendations for a realistic and effective statistical programme.

8. The 1983 World Programme of Industrial Statistics differs in several aspects from the 1973 Programme. The main difference is the emphasis in the present programme on separate recommendations for a minimum programme, which has been included to accommodate the developing countries. As up-to-date establishment registers will not normally be available in these countries, the minimum programme should start with a full-coverage canvassing of recognizable industrial (or, if considered feasible, all non-agricultural) establishments in order to organize the establishment register for use in a system of industrial surveys. It is important that the initial survey, in conjunction with the canvassing operation, be kept as simple as possible and only a few basic items of data should be gathered in the case of developing countries. In ensuring the attainment of limited goals, the groundwork will be laid for more extensive programmes later on, as experience, expertise and operational capability grow. The establishment register must be kept up to date to achieve these objectives.

9. The statistical objectives of the 1983 World Programme are drawn from the international recommendations for bench-mark inquiries in the industrial sector

(IRIS). They are defined not only in terms of the items of information which should be collected and tabulated but also in terms of the scope and coverage of the inquiry, the nature of the statistical unit to be used and the classifications that should be adopted. In order to achieve international comparability it is especially important that the recommendations be observed in all these respects and not solely in terms of the collection of the recommended items of information. Past experience indicates that critical obstacles to the comparability of the information are often posed by divergences from country to country in the classifications used and in the coverages of the sector achieved.

C. Role of the infrequent inquiry in the industrial statistics system

10. An infrequent establishment census is a key element in an integrated programme of economic statistics. That census should be supplemented by annual canvasses of a sample of establishments for the more important data items and by more frequent inquiries for those critical measures subject to seasonal or other short-term changes. For countries initially developing a system of economic statistics, a full-coverage census is an essential first step. However, this census may be limited in terms of data content. It should be followed, **as closely as possible**, by an annual sample inquiry, providing a continuous measure of industrial activity. Countries which do not maintain up-to-date registers should undertake a complete canvass for 1983 as the means of updating the register of recognizable industrial establishments and obtaining complete industry and geographical detail. Monthly or quarterly inquiries on key measures, such as employment and output, are the other vital elements in a co-ordinated industrial data programme.

11. Many countries recognize the importance of up-to-date knowledge about the nation's industrial structure and have already inaugurated annual inquiries. By providing a continuous inventory of inputs, outputs and the utilization of capital and labour resources, these annual figures may be used for various kinds of important operating decisions that are made once a year. These include production objectives, plans for budget, capital investment **etc.**

12. The data items in the annual and more frequent surveys should be requested on a sample basis, with the object of producing reasonably reliable information nationally for major industry groups and for principal geographical subdivisions on a total basis (for example, all manufacturing, all mining). These annual, quarterly and monthly programmes depend upon the development of an adequate directory of establishments based on the full-coverage census, and they require other preparatory actions, such as the designing of a sample, the selection of data items to be surveyed and the preparation of field and statistical office procedures. It is also important that the register established from the census should be systematically updated from various sources both within and outside the statistical agency.

13. In countries where an annual inquiry has not been instituted, it is desirable to formulate a time-table aimed at attaining a rounded system of industrial **statistics**. **The figure below shows a suggested time-table, beginning with a full-coverage census for 1983.** The dates displayed represent the years in respect of

which the data should be collected. The many preparatory steps necessary to meet these dates also have to be scheduled. The time-table covers the period 1983-1993, with the system fully in effect by 1989. The annual and more frequent inquiries would continue as shown up to 1993, when there would be another decennial census of industrial activity.

PROPOSED TIME-TABLE FOR THE INITIATION OF AN INTEGRATED
INDUSTRIAL STATISTICS SYSTEM,
1983-1993

Year	Type of inquiry		
	Census	Annual	Quarterly (or monthly)
1983	A		
1984 <u>a/</u>		B	
1985		B	B
1986		B	B
1987		C	B
1988 <u>b/</u>		C	C
1989 to 1992		D	C
1993	A	<u>c/</u>	C

A.- All establishments.

B - Cut-off sample of large establishments only.

C - Probability sample (large sample) - yielding industry group data for the country as a whole and total manufacturing (or mining and quarrying) for most of the principal geographical areas.

D - Probability sample (larger than C) - yielding industry group data for all of the principal geographical areas.

a/ No inquiry is proposed for 1984, which would be devoted to preparatory operations.

b/ Countries may choose to conduct a bench-mark census for 1988.

c/ In the census year, the annual survey is integrated into the bench-mark inquiry.

14. As indicated in the above figure, 1984 would be devoted to preparatory operations and for 1985 and 1986 coverage in the annual and more frequent surveys would start with a "cut-off" sample of large establishments. By 1987, a probability sample would be introduced to improve the quality of the annual statistics through representation of the smaller establishments. Sampling methods should be used extensively to obtain data from small establishments. Such units find it difficult to supply some types of data and are expensive to locate and enumerate. The high cost of collecting and compiling data on small establishments is disproportionate to their usually minor contribution to the total industrial activity. For countries which consider this schedule too ambitious, compromises will have to be sought. Instead of commencing with an annual survey of large establishments, this might initially be conducted every second year. A sampling of small establishments might be undertaken only for infrequent inquiries, possibly at five-year intervals.

15. In countries where household industry amounts to a significant proportion of all the manufacturing or mining activity, production in households should be incorporated in the census programme. A small area sample should be used to canvass household activity, with a special short form calling for a very limited amount of information. The sampling frame might be based on enumerations of these units, obtained in a population census.

16. The 1983 Programme is intended to be regarded in each country as an integral part of its national system of industrial inquiries. The degree of effort required to undertake the census will vary from country to country: in some cases, a major new undertaking may be involved; in others, it may only be necessary to supplement the annual reporting system. In all cases, the census inquiry should be fitted into the existing national system with a minimum of disturbance. Where important modifications to the system are required, consideration should be given to introducing on a more permanent basis the changes needed to bring the system into line with the international recommendations. In implementing the guide-lines for both the infrequent and annual inquiries, each country should proceed at a pace governed by its own resources, the degree of respondent burden and the reasonable needs of information users.

D. Organization of the recommendations

17. The recommendations for the 1983 World Programme consist of two parts. The present publication (Part One) outlines the nature and content of a programme of national industrial inquiries developed from the international recommendations on industrial statistics. These recommendations have been supplemented in the present publication in order to provide countries with more specific guidance on the form and content of the proposed inquiries. The introductory portion describes the history and nature of the Programme and the role of the census, as well as the annual inquiry in an integrated system of industrial statistics. Chapter I covers the scope, statistical unit, coverage, classification systems and reference period of the Programme. Chapter II includes the proposals for the items of information that should be collected on each major subject and for the tables appearing in the census publications, with special emphasis on those needed

for international comparisons. The latter chapter has been updated from the 1973 Programme to take into account anticipated changes in the industrial statistics standards and to clarify item definitions by providing more examples of inclusions and exclusions.

18. This publication presents three sets of options for the items of data to be obtained. One set constitutes a minimum programme for countries starting an industrial statistics programme and the other two provide options for countries with developed industrial statistics and for countries in the process of developing their industrial statistics. Priority rankings are assigned to each data item, giving weight on the one hand to the relative importance of the statistic and on the other the cost and difficulty of gathering the item. It is recognized that some modifications of the priorities will be required to reflect the special needs and industrial structure of particular countries. The items specified in the minimum programme should also be regarded as constituting the complete list recommended to all countries for reporting to the United Nations Statistical Office for the purpose of publishing internationally comparable results of the 1983 World Programme.

19. In approaching the measurement of specific inputs and outputs in the bench-mark inquiry, countries will find it useful to refer to a standard list of selected products and materials that was published as part of the 1973 recommendations. 5/ The commodity classification in a country's industrial census should ideally be compatible with that country's foreign trade classification. However, it is recognized that this cannot be readily achieved and, in the absence of such a classification, alternative systems may be used for the 1983 Programme. In establishing a classification system for gathering production and consumption data, the census planners may find useful the commodity classification prepared by the Statistical Office of the United Nations. 6/

20. Part Two of the 1983 Programme deals with the practical aspects of undertaking the census, beginning with the planning and preparatory phases and on through the review of tabulated data to publication of the preliminary and final results. In updating the 1973 Recommendations on the organization and conduct of industrial censuses, a number of additions and changes have been incorporated into the manual. The present recommendations recognize that electronic data processing is now the prevailing system in almost all developing countries and the chapters on pre-publication processing have been updated accordingly. A new chapter has been added on the review of tabulated data prior to publication, reflecting the critical importance of that stage of processing. The guide-lines for conducting inquiries in the household sector have been expanded to assist countries where industrial activity in such units is significant.

5/ Recommendations for the 1973 World Programme of Industrial Statistics, Part II, List of Selected Products and Materials, Statistical Papers, Series M, No. 54 (Part II) (United Nations publication, Sales No. E.71.XVII.16).

6/ "International Standard Classification of all Goods and Services (ICGS) (draft): report of the Secretary-General" (E/CN.3/493).

Chapter I

GENERAL CHARACTER OF THE PROGRAMME

A. Introduction

21. The items for which data are collected are only one segment of the bench-mark census. Equally important is the framework for the inquiry, which encompasses the scope and coverage of the census, the statistical unit, reference period and classification structures for collecting and tabulating the information. The success of a bench-mark census, or annual survey, is measured by the care with which standards for these concepts are selected and the skill employed in translating them into questionnaire design, processing procedures and table outlines.

22. The primary goal of each national statistical organization should be the successful completion of the bench-mark census within the funds and personnel available; the results should meet prescribed standards of accuracy and should be issued on a timely basis. For developing countries with a relatively brief history of industrial statistics to be able to achieve this goal, data requests will have to be limited to key items only, and inquiries designed that are consistent with industrial record-keeping practices.

B. Scope

23. The 1983 Programme is intended to cover the industrial sector in each participating country. In accordance with the international recommendations, that sector is defined as including all establishments within the territorial boundaries of the country engaged primarily in mining, manufacturing and the production and distribution of electricity, gas and water. These activities correspond to major divisions 2, 3 and 4, respectively, of the International Standard Industrial Classification of All Economic Activities (ISIC). ^{7/} Industrial activities in international waters, such as the offshore operation of petroleum and natural gas wells, or the processing of fish on vessels engaged solely in that activity, should be included if these activities have their land-base within the territorial boundaries of the participating country.

24. Household units (units where artisan and handicraft activities are carried out on household premises) should be included as part of the industrial sector and brought within the scope of the Programme if the total value of their production of goods and services for sale or exchange is known to account for a significant proportion of total industrial activity. Household industries may be surveyed as part of a country's regular household survey or in a special survey. Alternatively, these units may be enumerated more easily within the framework of a census of population from which an approximation of the extent of industrial activity in households could be obtained.

^{7/} International Standard Industrial Classification of All Economic Activities, Statistical Papers, Series M, No. 4, Rev.2 (United Nations publication, Sales No. E.68.XVII.8).

25. Industrial activity outside the industrial sector as defined above is normally of minor importance. However, where a significant amount of industrial activity is carried on in non-industrial establishments (for example, farms or retail stores) and the establishments can be readily identified, efforts should be made to isolate and measure their industrial output; a special abbreviated survey might be made of these establishments as a supplement to the main inquiry and incorporated in the results.

26. Because of the similarities between industrial and distributive and service-trade inquiries, some countries have at the same time conducted bench-mark inquiries into these activities. Among the advantages in a combined approach to such inquiries is the avoidance of overlap or gaps in the enumeration of establishments. Nevertheless, for the 1973 Programme it was considered that the additional effort was so great and the strain on available resources likely to be so pronounced that a more comprehensive programme of the kind envisaged could not be recommended for general implementation in the same year, especially in the case of developing countries. For the present Programme, however, the inclusion of distributive trades should be regarded as an optional expansion of the recommended scope. Guide-lines for work in this area have been provided in United Nations publications 8/

27. In a number of countries, information on the production and distribution activities in one or more of the electricity, gas and water industries is provided periodically in reports by the government agency administering the facilities operated in that industry. In such instances, a decision may be made by the particular country to omit the industry(ies) involved from the scope of the inquiries.

C. Statistical unit

28. Selecting the statistical unit (the entity for which the items of data are gathered) is a matter of balancing the data needs against the practical considerations of business organization and record-keeping practices. The aim of a bench-mark industrial census is to provide a detailed blueprint of the industrial economy of a country. The census results should, accordingly, permit an analysis of industrial activity in terms of specific industries and relatively small geographical areas. The kind of statistical unit chosen is very important, because that unit will: (a) determine the degree of detail in which the data can be compiled and published; (b) determine the extent to which the results of one survey can be related to another survey; (c) be a major factor in the relative ease or difficulty with which respondents are able to provide the required data; and (d) directly affect the speed and cost of data collection and compilation by the statistical organization.

8/ International Recommendations on Statistics of the Distributive Trades and Services, Statistical Papers, Series M, No. 57 (United Nations publication, Sales No. E.75.XVII.9); and Organization and Conduct of Distributive-Trade Surveys, Studies in Methods, Series F, No. 19 (United Nations publication, Sales No. E.77.XVII.3).

29. The recommended statistical unit for the 1983 World Programme is the establishment. This is defined, ideally, as the "economic unit which engages, under a single ownership or control, that is, under a single legal entity, in one, or predominantly one, kind of economic activity at a single physical location". 9/ In practice, however, the ideal concept of the establishment cannot always be employed. The establishment may be part of an enterprise which engages in more than one kind of activity at a single location and the organization and record-keeping practices of the enterprise may be such that separate data cannot be readily compiled on the different lines of activity.

30. Because of the variations in organization and record-keeping practices, some flexibility has been introduced into the interpretation of what constitutes an establishment. The modified definition does not insist upon "a single physical location" or "one, or predominantly one, kind of economic activity". Instead, the establishment is defined in operational terms as the unit that is engaged in "the production of the most homogeneous group of goods and services, usually at one location, but sometimes over a wider area, for which separate records are available that can provide data concerning the production of these goods and services and the materials, labour and physical resources ... used in this production". 10/ Combined locations should not usually be accepted in the census when they fall in two or more areas designated separately in the geographical tabulations of census data, but they cannot always be enumerated separately. Problems are encountered with the separate enumeration of very small units in different areas and units with highly integrated production and accounting systems at different locations. For the latter, if full detail cannot be supplied, information should be sought on key items, such as employment, to enable the statistical authorities to estimate the detail.

31. For mining, the establishment includes the combination of "wells, shafts or pits of the enterprise which tap a single field. Any ore-processing or ore-beneficiating plants located at the mine site should be included as part of the establishment". 11/ For practical purposes, in reporting oil and gas field operations the establishment may be defined as including all oil and gas field activities operated by the reporting company in one of the particular country's principal geographical subdivisions (for example, provinces). Offshore operations adjacent to each province constitute a separate establishment. In the electricity, gas and water industries, the establishment embraces the producing plant and its associated distribution system. For the electricity industry, transformer stations are included as part of the establishment. It may be found that mining, especially offshore operations, and electricity distribution systems do not respect provincial or other local boundaries.

9/ International Recommendations for Industrial Statistics, Statistical Papers, Series M, No. 48 (United Nations publication, Sales No. E.68.XVII.10), para. 39.

10/ Ibid., para. 41.

11/ Ibid., para. 43.

32. The typical establishment is a single economic unit engaging in a single kind of business under a single ownership at a single location. Here, the enterprise and the establishment are the same. Even where one encounters enterprises with two or more economic units, the organizational structure of such enterprises often provides subdivisions that meet quite adequately the separate location and single activity criteria of the establishment concept. This is not always the case, however, and, particularly in highly industrialized countries, one encounters single locations engaged importantly in diverse industrial activities. This phenomenon can so affect the validity of the published data by industry that respondents are urged to submit separate establishment reports where a single physical location of some magnitude encompasses two or more distinct industrial activities, each of which is statistically significant. However, where separate data on the output and coupled inputs of the different classes of activity cannot be supplied at a reasonable cost by the respondent, it will be necessary to accept the "local unit" as an approximation of the recommended concept of the establishment. The "local unit" covers all economic activities carried on at a single location under a single ownership or control.

33. In other instances, when multi-unit enterprises have special difficulty reporting on an establishment basis, it may be necessary to use the "kind-of-activity unit" as a suitable alternative to the establishment. The "kind-of-activity unit" differs from the establishment in that there is no restriction in respect of the geographical area in which a given kind of activity is carried on by a single legal entity. Limited geographical detail might then be obtained for a particular item of data, for example, the number of persons engaged in each geographical area distinguished in the tabulation plans.

34. In addition to producing units, the industrial sectors of industrialized countries and, to a lesser extent, countries with developing economies have units engaged in ancillary activities. Such units operate primarily or exclusively for a related establishment or a group of related establishments and produce goods or services that support but do not become part of the output of those establishments. An ancillary unit serving a single establishment should usually be treated as an integral part of the main establishment. If, however, the unit is located in an area that, for tabulation purposes, is separate from the main establishment's geographical area, that ancillary unit should be treated as a separate establishment classified to the same industry as the parent establishment. Central ancillary units, that is to say, ancillary units serving two or more establishments of a multi-establishment enterprise, where details permit, may be regarded as separate establishments and classified according to the predominant activity of the establishments served. The most common example of an ancillary unit is a central administrative office. Warehouses, garages, repair shops and research laboratories are other examples of ancillary units.

D. Coverage

35. Complete coverage, at least on an estimated basis, is the objective of the 1983 Programme. Although this is not to say that a complete enumeration of establishments of all sizes is required, it does mean that the enumeration should be such that satisfactory estimates can be prepared for the universe as a whole.

Complete coverage may be achieved at a reasonable cost and with a reasonable respondent burden by using a short questionnaire, requesting only a few key items of data. This approach has the merit of providing an industrial directory of establishments, which can serve as the sampling frame for annual and more frequent inquiries so long as the directory can be kept up to date.

36. Alternatively, complete coverage may be based on complete coverage of large establishments supplemented by a sample of small establishments, rather than on their complete enumeration. When a complete register of establishments is available, or the required information can be obtained from other sources, this may be accomplished by using size stratification sampling. Otherwise, area sampling will be necessary. Sometimes a combination of the two techniques is employed. In any event, the sample design must represent the population being enumerated and have measurable reliability. Sampling, or the use of short forms, or a combination of the two, are attempts at coping with the difficulties of collecting data from a large number of small units, often with rudimentary or non-existing records.

37. Owing to the limitations in financial and human resources for such work in a particular country, the census coverage may be limited to the larger establishments. In practice, such establishments might be defined as those with five or more persons engaged. This type of coverage, which must be based on a predetermined knowledge of the field to be covered, is often found in bench-mark inquiries in countries at an early stage of statistical development and frequently in annual surveys in the more advanced nations. It is generally satisfactory as a basis for estimating production, consumption and capital formation and for industrial commodity flows in general. Although the cut-off point of five persons engaged may be regarded, for purposes of international comparability, as a reasonable approximation to the full coverage desired, it may be insufficient to cover a substantial proportion of the activities of particular industries (for example, the apparel industry). For industries known to be in this category, after considering the difficulties of obtaining the data, the existence of alternative sources and the resources available, an extension of coverage below this cut-off point may be advisable.

E. Classification systems

38. For industrial census results to be useful, the reported data must be classified in meaningful arrangements. The two principal characteristics by which the statistics are classified are industry and geographical area. In addition to these classifications, reported data are often aggregated by size of establishment (as measured by number of persons engaged, value of output or value added) or by other characteristics of the establishment, such as form of ownership or legal organization.

39. Uniformity in the industrial classification employed and in the application of classification standards is essential for internationally comparable results. It

is recommended that the 1968 version of ISIC 12/ should be used for the 1983 Programme and that full detail for the standard items of data should be shown to the lowest (four-digit industry) level of the classification, whenever possible.

40. For national purposes, the classification of industrial data by geographical area is essential. The geographical categories should follow a particular country's political or administrative subdivisions, or areas designated by the national statistical authorities. Tabulations of the varying levels of geographical detail, based on the size and economic importance of the areas, are discussed later in this document.

F. Reference period

41. The period to which the information compiled on activity should relate is the calendar year 1983. When data are more readily available for particular establishments on a fiscal-year basis, it may be necessary to accept data on that basis. In any event, the reported information should cover 12 months and efforts should be made to ensure that the fiscal year reporting includes at least 6 months in the calendar year 1983. Where fiscal years are used, it is desirable to collect some items of data, such as employment and wages and salaries, on both a fiscal-year and a calendar-year basis to facilitate the building up of calendar-year aggregates. If a fiscal year is the normal accounting period for most establishments in the particular country, then the data may be compiled uniformly on a fiscal-year rather than a calendar-year basis. There are advantages if all establishments submit returns covering an identical 12-month period, or if returns on a fiscal-year basis are converted to a calendar year by the statistical agency, particularly in integrating the annual data with monthly or quarterly data.

G. List of items and priorities

42. The selection of items of information that should be enumerated by a country participating in the 1983 World Programme should be determined by national needs and circumstances within the framework of these international recommendations. For countries undertaking an industrial inquiry for the first time, the coverage of items will normally be limited to those listed under the minimum programme. For other countries, chapter II below contains the recommended items of data, separately for countries with developed industrial statistics and for countries in the process of developing such statistics, the definitions of the items of data and the priorities accorded to them for collection as part of the 1983 World Programme.

43. Definitions of the items of data have been derived from the international recommendations on industrial statistics and included in the present publication

12/ International Standard Industrial Classification of All Economic Activities, Statistical Papers, Series M, No. 4, Rev.2 (United Nations publication, Sales No. E.68.XVII.8).

to facilitate their use. The priorities assigned follow the distinction made in the international recommendations between countries with fairly well-developed industrial statistics (noted in the tables by "developed") and countries which are beginning to develop, or are in the process of developing, their industrial statistics (noted in the tables by "developing"). Although all countries will eventually aim at adopting the more comprehensive recommendations, shortened versions are necessary for developing countries to take account of their limited resources and the difficulties involved in gathering the data. Finally, the data items are specified for the continuing annual inquiry, which is an essential element, together with the bench-mark census, in a comprehensive system of industrial statistics.

H. Publication of the results

44. A plan and time-table for the tabulation and publication of the results of the 1983 inquiries should be an integral part of each national programme. In that planning, the distinction between the tables which are essential for international comparability and the tables required for national purposes, classified by location, should be kept in mind. The reporting requirements for the World Programme are indicated in table 1 in the minimum programme. For countries proceeding beyond the minimum programme, table outlines are included under each subject section of the complete programme to promote the standardized publication of data. A schedule that would permit the timely publication of the census results would designate 1984 as the year for the mailing, return and initial processing of questionnaires, 1985 for the final processing and estimation of data and 1986 for the publication of full results. The publication of the results of the minimum programme and summary provisional results of the complete programme should, however, be attempted in 1985 and transmitted to the Statistical Office for publication before the end of 1986.

Chapter II
CONTENT OF THE PROGRAMME

45. The objective of the 1983 World Programme is the world-wide compilation of indicators on major aspects of industrial activity, classified by industry and other specified criteria. In order to permit all countries to participate in this undertaking, the Programme is presented in two versions - a minimum programme and a complete programme. The content of each programme is described separately below.

A. The minimum programme

46. The minimum programme should be regarded as the primary goal of all countries. The essence of this programme is the compilation of indicators on a few aspects of industrial activity. This approach has been adopted to permit countries with little or no experience in industrial census-taking to participate. The indicators selected are those that are considered to be relatively easy to obtain. While this approach will not yield results with all of the detail normally expected of an industrial census, it has the distinct advantage of providing some measure of industrial activity hitherto unknown in many instances. It also permits the establishment of a framework for conducting more extensive inquiries in the future.

47. While the number of data items have been reduced under these limited objectives, there should be no reduction in the extent of coverage. A full-coverage census is an important step towards the setting up of an industrial directory, which should then be kept up to date to serve as a basis for the development of future industrial statistics programmes.

48. It is hoped that these limited objectives will encourage all countries to contribute to the 1983 Programme. Although this approach was adopted to facilitate the work of countries initiating a programme for the first time, it should also help to solve the problems facing countries with existing programmes that are limited in scope and coverage, and countries with fully developed industrial statistics that are at variance with the international standards. The limited amount of detail called for in the summary table of the minimum programme should allow all countries to compile the required information, which may be to a certain extent based on estimation. Therefore, all countries are urged to take the necessary steps to enable them at least to compile this part of the minimum programme.

49. The content of the minimum programme covers selected items of information under three subject areas - identification and classification information, employment and earnings, and gross output. The data items are defined in general terms under each subject area, with reference to the more detailed definitions in the complete programme to provide any necessary clarification.

50. The addition of one more key item, namely, the cost of purchased materials, energy and services, would enable the national statistical organization to calculate value added. Value added avoids the duplication inherent in gross output and is universally accepted as the best measure for comparing different industries and geographical areas (see sect. 7 of the complete programme). Although not in the

minimum programme, in order to enhance its chances of success, the capabilities of the respondents and the national statistical office to deal with the reporting of "purchased materials and services" should be carefully considered before accepting the informational loss of the value-added measure.

Section 1. Identification and classification information

51. This section deals with information for identifying and classifying the establishment, the statistical unit recommended for the programme. The information sought for each establishment covered by a census report should consist of the business name and address and a description of the principal establishment activity. Activity should be defined in terms of principal products made or services performed, which will be based on information provided by the respondent. The address requested should relate to the physical location of the establishment, which may differ from the mailing address. (Establishment information is discussed in sect. 1 of the complete programme.)

Section 2. Employment and earnings

52. This section covers the total number of persons engaged in the work of the establishment, the total number of paid employees, and the wages and salaries paid to employees during the reference year. (Employment and earnings are covered in sect. 2 of the complete programme.)

53. The measure of employment recommended here differs from the complete programme, as it refers to the number employed for one period, defined as a week or pay period towards the end of the reference year. To facilitate reporting, the number of working owners and unpaid family workers should be collected separately from the number of employees.

Definitions

54. Persons engaged. "Persons engaged" are defined as the total number of persons who worked in or for the establishment during the reference period, except homeworkers, including working proprietors, active business partners, unpaid family workers and regular employees. Unpaid family workers include all persons living in the household of the owner and working in the establishment without regular pay for at least one third of the normal working time. Unpaid workers not living in the household of the owner may also be included here.

55. Homeworkers (persons who do work in their own home on materials provided by the establishment) should not be included in the employment numbers but, in countries where their number is significant, they should be enumerated and shown separately as a memorandum item.

56. Employees. All persons who received pay for work done for the establishment should be included as employees, whether engaged full-time or part-time, including persons on sick leave, holiday or vacation. This category is intended to include all persons engaged, other than working proprietors and unpaid family workers.

57. Wages and salaries. Wages and salaries include all payments, whether in cash or in kind, made by the employer during the reference period to persons included in the count of employees in connexion with work done for the establishment. The payments include: (a) all regular and overtime cash payments, bonuses and cost-of-living allowances; (b) wages and salaries paid during vacation and sick leave; (c) taxes and social security contributions and the like, payable by the employee and deducted by the employer; and (d) payments in kind.

Section 3. Value of shipments and receipts

58. The measure of gross output called for in this section is an approximation only, relating to the value of shipments and receipts for services performed by the establishment during the reference period. (Gross output is discussed in sect. 6 of the complete programme.)

Definitions

59. The item should include the value of all goods shipped from the establishment in the reference period, as well as the value of all services rendered to others and other revenues. Sales of goods shipped in the same condition as received and sales of scrap and refuse should be included. Services cover receipts for contract or commission work done for others on their materials, repair and maintenance work on machinery and equipment, installation work etc. Transfers to or work done for other establishments of the same enterprise should be included.

60. The valuation should be at the ex-establishment price charged to the buyer, net of any discounts or rebates. A valuation in producers' prices should be sought, that is, taxes and duties which fall on the products as they leave the establishment should be included and the total value of output should exclude any subsidies received in support of production. 13/

Tabulation plan

61. The principal table for the minimum programme should show the items of information, classified by industry at the four-digit ISIC level. (This is an abbreviated version of table 1 (a) of the complete programme.) Supplementary tables should cross-classify the industry detail at a higher level by geographical area and by establishment size.

Table 1. Selected indicators of industrial activity, classified by industry

Industry (four-digit ISIC)	Number of establishments	Number of persons engaged	Employees		Value of shipments and receipts in producers' prices
			Number	Wages and salaries	

13/ A valuation in producers' prices has been adopted in these recommendations so that it conforms to the valuation recommended for compiling national accounts statistics.

B. The complete programme

62. The complete programme entails the compilation of indicators on all major aspects of industrial activity, classified in detail according to industry, geographical area and other characteristics, such as size of establishment. The content of the programme is indicated and discussed in terms of items of data which are grouped into the following principal subject areas:

Section 0. Summary tables

Section 1. Identification and classification information

Section 2. Employment and earnings

Section 3. Stocks

Section 4. Fixed capital formation

Section 5. Input costs, including detailed materials and energy consumption

Section 6. Gross output, including detailed products

Section 7. Value-added measures

63. In each section, the nature of the items of information to be gathered, tabulated and published is described. The items of data are defined by including the full text of the definitions extracted from IRIS, with updated modifications as appropriate and, in some instances, additional specific examples of inclusions and exclusions.

64. Table outlines for publishing the data as a record of participation in the programme are provided in the form of table titles and column headings. However, countries should also complete table 1, shown under the minimum programme, for transmittal to the United Nations Statistical Office. Summary tables are added at the beginning of the chapter to afford perspective to the entire publication programme. The groupings of data items are arranged (sects. 1-6) in the order suggested for their placement on the census questionnaire. Value added (sect. 7) is not collected directly but is calculated by the statistical agency from the reported input and output information. Specimen questionnaires suggested for use in the programme are shown in an annex to Part Two of the present publication. The relationship between items as they appear on the questionnaire and in the tables for publication is brought out by the parenthetical reference to item number in the column headings of the table outlines, which broadly corresponds to the item number of the questionnaire.

65. For each of the items in the six data groups, a recommendation is made as to the priority to be accorded to the collection of the information by countries with developed industrial statistics and countries in the process of developing such statistics. Each item of data is indicated as being first priority (noted by the entry "1") or second priority (noted by the entry "2"). Where short forms are

used to collect information from small establishments in the census, the second priority items should be omitted. Further recommendations are made regarding the data items to be gathered in a continuing annual industrial inquiry.

Section 0. Summary tables

66. Two summary tables covering all industry should be included in the published results of the complete programme: (a) the principal indicators of industrial activity presented at the four-digit ISIC level (with totals at the one-digit, two-digit and three-digit levels); and (b) the same indicators for each geographical area at the two-digit or preferably the three-digit ISIC level. In addition, two supplementary tables might be shown: (c) the principal indicators by industry at the two-digit ISIC level, cross-classified by size class of establishment and (d) the principal indicators by industry at the two-digit ISIC level, cross-classified by type of establishment (form of ownership, legal organization and economic organization). Each of the summary tables described above would have the identical set of columns shown for table 1 (a) below.

67. If space permits, two key indicators (number of persons engaged, or employees, and value added) from the previous census should be shown on each line. The importance of showing comparisons over time is so great that consideration should be given to displaying the table broad-measure, in order to accommodate the additional columns. Summary tables with the same format would be desirable as representing establishments with five or more persons (or 10 or more as the case may be) where the detailed subject tables on stocks, categories of fixed asset acquisitions, detailed inputs etc. represent only the universe of establishments above the cut-off point.

Table 1 (a). Principal indicators of industrial activity, classified by industry

Industry (four-digit ISIC)	Number of establishments	Number of persons engaged	Employees		Value of output	Cost of materials and industrial services	Changes in stocks	Gross additions to fixed assets
			Number	Wages and salaries				
Item →	1	.2	2 (b)	3	13	8	a/ 6.2-6.1	7

Table 1 (b). Principal indicators of industrial activity, classified by geographical area and industry (two-digit and three-digit ISIC)

Table 1 (c). Principal indicators of industrial activity, classified by industry (two-digit ISIC) and establishment size class

Table 1 (d). Principal indicators of industrial activity, classified by industry (two-digit ISIC) and type of establishment

a/ Census value added calculated as follows: item 13 less item 8.

Section 1. Identification and classification information

Introduction

68. This section of the programme is concerned with information needed for directory purposes, for linking enterprises with their establishments, and for coding the establishments geographically and according to structural characteristics such as size and form of ownership.

Recommended items

69. The following list indicates the items recommended for inclusion in the industrial census and their priority.

<u>Item number</u>	<u>Description</u>	<u>Priority</u>	
		<u>Developed statistical system</u>	<u>Developing statistical system</u>
1 (a)	Name of establishment	1	1
1 (b)	Physical location of establishment (street and number; city, town or village; county, province)	1	1
1 (c)	Economic organization of establishment (single-unit or multi-unit; name and address of head office)	1	1
1 (d)	Form of ownership (foreign or national; if national, government or private)	1	1
1 (e)	Legal organization (unincorporated, incorporated and co-operatives)	1	1
1 (f)	Period of operation during reference year and change of ownership, if any	1	1

Note: All of the above items should be requested in an annual inquiry on industrial activity.

Definitions

70. The items in this section are basically self-explanatory as they appear on the questionnaire. It needs to be emphasized, however, that accurate and precise information on the physical location of each establishment is essential for the geographical tabulations of activity. Both the census enumerator and the respondent should be sure that the answer to item 1(b) relates to the actual physical location, which may be different from the mailing address, and, if location cannot be described by street and number, as much information as possible is provided as to street intersection, name of road or highway and distance from nearest city, town or village.

71. The economic organization should determine whether the establishment is a single-unit establishment, a head office or other establishment owning or controlling other establishments, or a multi-unit establishment owned or controlled by another establishment. If the unit owns or controls other establishments, the names and addresses of the establishments should be requested. If the unit is owned or controlled by another establishment, the name and address of the owning unit should be requested.

72. "Form of ownership" should distinguish between national or foreign ownership and, if national, between public or private ownership. All government enterprises and public corporations that are owned and controlled by the public authorities are to be considered as being publicly owned. Privately owned units are those owned and controlled by private parties.

73. Privately owned units should also be defined by type of legal organization, in terms of the legal form of the legal entity directly owning the unit. The categories should reflect national law and custom. The minimum classification should distinguish between unincorporated units, incorporated units other than co-operatives, and co-operatives. Further detail, for example, of unincorporated units by sole proprietorships and ordinary (unlimited liability) partnerships, and incorporated units by limited liability partnerships, joint stock companies and corporations may be introduced on the basis of national circumstances and requirements.

Tabulation plan

74. Identification and classification information is essential for every tabulation of census data. This item is the basis for the establishment counts shown in the summary tables and in other selected tables. It is desirable for the census publications to include tables presenting establishment counts for individual four-digit industries according to the detailed geographical area in which the establishments are located; these numbers are significant for industrial marketers. The reverse combination, with geographical area (province, county etc.) as the primary classification and four-digit industry as the secondary, affords a useful arrangement of data for the regional planner and industrial development specialist. In both arrangements, the number of units should be distributed by employment size ranges. For international comparisons, the classification should distinguish between establishments with the following numbers of persons engaged: 1-4, 5-9, 10-19, 20-49, 50-99, 100-199, 200-499, 500-999 and 1,000 and over.

Table 2 (a). Establishments by employment size class, classified by industry and geographical area

Industry (four-digit ISIC) and geographical area	Number of establishments by employment size class							1,000 and over
	Total	1-4	5-9	10-19	20-49	50-99	100-199	
Item ↑	1							

Table 2 (b). Establishments by employment size class, classified by geographical area and industry

Geographical area and industry (four-digit ISIC)	Number of establishments by employment size class							1,000 and over
	Total	1-4	5-9	10-19	20-49	50-99	100-199	
Item ↑	1							

Section 2. Employment and earnings

Introduction

75. This section relates primarily to the nature and dimensions of the employment provided by each industry and to the annual earnings of each kind of paid labour. It also provides for the reporting of hours (or days) worked by operatives as a more precise measure of labour input. Supplements to wages and salaries, an increasingly significant part of total labour remuneration (up to 20 per cent of the total labour cost in many countries) is included in the programme as a first priority item for countries with developed industrial statistics but as a second priority for others.

Recommended items

76. The following items are recommended for inclusion in the bench-mark census in this section:

<u>Item number</u>	<u>Description</u>	<u>Priority</u>	
		<u>Developed statistical system</u>	<u>Developing statistical system</u>
2	Number of persons engaged	1	1
2 (a)	Working proprietors and active partners; unpaid family workers	1	1
2 (b)	Number of employees	1	1
2 (b).1	Operatives	1	2
2 (b).2	Other employees	1	2
3	Wages and salaries of employees	1	1
3 (a)	Of operatives	1	2
3 (b)	Of other employees	1	2
4	Supplements to wages and salaries of employees	1	2
5	Hours (days) worked by operatives	1	2

Notes: All of the items designated priority "1" in the table above for the particular country should be requested in an annual inquiry on industrial activity.

Item 2 (a). Some countries may wish to call separately for: (a) working proprietors and active partners; and (b) unpaid family workers.

Item 4. This item can be subdivided between: (a) legally required payments, including social security; and (b) payments for voluntary programmes.

Item 5. Although "hours worked" is the preferred concept, "days worked" is suggested by the Statistical Commission as an alternative measure for developing countries which find that the number of hours worked cannot be reliably supplied by a large number of establishments.

Definitions

77. Persons engaged. The number of persons engaged in the establishment should be defined as the total number of persons, except homeworkers, who work in or for the establishment, including working proprietors, active business partners, unpaid family and other unpaid workers. ^{14/} The enumeration should relate to the average number of employees (the arithmetic average of the number of employees in several specified periods of the year) plus the number of working proprietors, active business partners and unpaid family workers engaged during a single period of the year. To allow for seasonal differences in employment, a pay period during the mid-month of each of the four calendar quarters may be selected as the reference periods. The totals should include part-time workers and seasonal workers on the pay-roll, persons on short-term leave such as sick or annual leave, vacations or holidays and also persons on strike; they should exclude persons on indefinite leave or military leave or on pension.
78. Working proprietors and active business partners. This category comprises all individual proprietors and partners who are actively engaged in the work of the establishment. Silent or inactive partners are excluded. The category is not applicable to any incorporated or similar enterprise, the ownership of which is represented by equity shares. Managers of such enterprises and directors working for pay should be reported as "other employees".
79. Unpaid family workers. All persons living in the household of the proprietor of the owning enterprise and working in the establishment without regular pay (that is, without an agreed amount to be paid for work done) for at least one third of the working time normal to the establishment are included in this category. In practice, it may be necessary to broaden this definition to account for non-household members who work without regular pay.
80. Employees. This category covers all persons who work in the establishment and receive pay, and persons (except homeworkers) working away from the establishment when paid by and under the control of the establishment - for example, sales representatives, travelling engineering representatives, travelling maintenance and repair personnel. Also included are salaried managers and directors of incorporated enterprises, except when paid solely for their attendance at meetings of the board of directors. The category "employees" is intended to include all persons engaged other than working proprietors, active partners and unpaid family workers. The employee data should, if possible, distinguish between "operatives" and "other employees". The object of the subdivision is to identify those employees most directly associated with the production, as opposed to the overhead activities of the unit. For some countries, or for some establishments in the same country, the terms (a) "wage earners" and "salaried personnel", (b) "hourly rated" and "yearly rated", or (c) "production workers" and "other employees" may fit in more with company practices and should,

^{14/} Homeworkers should also be enumerated, but should be shown separately as a memorandum item in the published tables in countries where their number is significant.

therefore, be used, at least parenthetically, on the questionnaire or in the accompanying instructions. The precision with which the distinction can be made between "operatives" and "other employees" depends upon the nature of the employment records available for most establishments, that is, the detail of those records and their similarity from one establishment to another.

81. Operatives (wage earners; hourly rated employees; production workers - see para. 80 above). Operatives are defined as all employees who are directly engaged in the production or related activities of the establishment, including any clerical or working supervisory personnel whose function is to record or expedite any step in the production process. Examples are persons engaged in fabricating, processing or assembling, shop messengers, stokers and shop-cleaning personnel, warehousemen, packers, repairmen, shop-testing and record-keeping personnel, and inspectors. Employees of a similar type engaged in activities ancillary to the main activity of the establishment and persons engaged in truck driving, repair and maintenance and so on should also be considered operatives. Supervisory employees above the working foreman level should be excluded.

82. Other employees (all employees other than operatives as defined above) include administrative, technical and clerical personnel, such as salaried managers and directors, laboratory and research workers, clerks, typists, watchmen, book-keepers, administrative supervisors, salesmen and the like. Proprietors and partners should be excluded.

83. Wages and salaries of employees. This category covers all payments, whether in cash or in kind, made by the employer during the year in connexion with work done, to all persons included in the count of employees. It includes all cash payments, bonuses, cost-of-living allowances and wages paid during periods of vacation and sick leave; taxes, social security contributions, group insurance premiums and the like, payable by the employee but deducted by the employer; and payments in kind. Lay-off payments and compensation for unemployment are included, except where such payments are made from trust and other special (including governmental) funds set up expressly for this purpose. Social security or pension contributions and the like payable by the employer are excluded from wages and salaries. Payments to homeworkers should be treated not as wages and salaries but as part of the cost of contract and commission work done by others (see para. 114 below).

84. Wage and salary payments in kind (to be included in "Wages and salaries of employees") are defined as the net cost to the employer of those goods and services furnished to employees free of charge or at a markedly reduced cost which are clearly and primarily of benefit to the employees as consumers. The item includes food, beverages, tobacco, clothing (except uniforms for civilians, as these are not usually worn off duty) and lodgings provided free of charge or at a markedly reduced cost.

85. Supplements to wages and salaries of employees. This item covers payments made by the employer on behalf of his employees which are normally considered in national accounting practice to form part of employees' income but not of wages and salaries. Included are employers' contributions to (a) social security systems;

(b) unemployment compensation and workmen's accident compensation plans, where payments from such plans are made from trust or other special (including governmental) funds set up expressly for this purpose; (c) insurance premiums on hospital and medical plans; (d) premiums on supplementary accident and sickness insurance; (e) private pension plans; and (f) life insurance premiums. All such programmes should be included, whether legally required, initiated by the employer or established as a result of a labour-management bargaining contract. For programmes financed jointly by employer and employee contributions, only the employer payments should be included.

86. Hours (days) worked by operatives. "Hours worked" is defined as the total number of hours actually spent by operatives at work, including waiting time. Overtime is included and calculated in terms of actual hours spent at work and not in terms of time paid for. Since it is hours worked rather than hours paid for that are to be reported, time spent on vacation, holiday, casual or sick leave when the employee was not at the establishment should be excluded. Days worked is often easier to obtain from pay-roll records than hours worked, and may be selected as an alternative measure. Days worked should refer to the total number of days spent at work and not to days paid for, so days spent on vacation, casual or sick leave should be excluded. In addition, it would be useful to ascertain the normal number of working hours per day in the establishment for full-time workers and to collect separately the days worked by part-time workers.

Tabulation plan

87. The items on employment and earnings should be tabulated: (a) by branch of industry in four-digit ISIC detail; and (b) by broad geographical area (province or state), cross-classified by three-digit ISIC. In some instances, additional detail on the item may be required for national purposes, for example, **distributions** of employment and earnings according to sex, age, nationality and the degree of labour skill or whether employment is full-time, part-time or seasonal. For historical comparison with previous censuses or annual inquiries, the number of persons engaged (or number of employees) is the most frequently selected item, together with value added.

Table 3 (a). Employment and earnings, classified by industry

Industry (four- digit ISIC)	Number of persons engaged				Hours (or days) worked by operatives	Wages and salaries			Supple- ments to wages and salaries
	Total	Working proprietors and unpaid family workers	Employees			Total	Operatives	Other	
			Operatives	Other					
Item →	2	2(a)	2(b).1	2(b).2	5	3	3(a)	3(b)	4

Table 3 (b). Employment and earnings, classified by geographical area and industry

Geographical area and industry (three- digit ISIC)	Total	Number of persons engaged			Hours (or days) worked by operatives	Wages and salaries			Supple- ments to wages and salaries	
		Working proprietors and unpaid family workers	Employees			Total	Total	Operatives		Other
			Operatives	Other						
Item →	2	2(a)	2(b).1	2(b).2	5	3	3(a)	3(b)	4	

Section 3. Stocks

Introduction

88. This section is designed to measure changes in stocks during the inquiry year, as well as the level of stocks. Data should be shown, for each four-digit ISIC category, on the value of stocks at the beginning and end of the year in terms of: (a) materials, fuels and supplies; (b) work in progress; (c) finished products; and (d) goods for resale. Stocks are not very significant in the electricity, gas and water industries. In particular, the work in progress and the stocks of finished goods held by those industries are minimal. The detail of stocks by type, or even total stocks, may accordingly be omitted from the questionnaire in those areas.

Recommended items

89. The following items are recommended for inclusion in the bench-mark inquiry for this section:

<u>Item number</u>	<u>Description</u>	<u>Priority</u>	
		<u>Developed statistical system</u>	<u>Developing statistical system</u>
6	Total stocks		
6.1	At beginning of year	1	1
6.2	At end of year	1	1
6 (a)	Materials, fuels and supplies		
6 (a).1	At beginning of year	1	1
6 (a).2	At end of year	1	1
6 (b)	Work in progress		
6 (b).1	At beginning of year	1	1
6 (b).2	At end of year	1	1
6 (c)	Finished goods		
6 (c).1	At beginning of year	1	1
6 (c).2	At end of year	1	1
6 (d)	Goods for resale		
6 (d).1	At beginning of year	1	1
6 (d).2	At end of year	1	1

Note: Total stocks as well as the detail by type should be collected in an annual inquiry.

Definitions

90. Valuation of stocks. The data should comprise the value of all inventories owned by the parent enterprise and held by, or under the control of, the establishment (at the establishment itself or in ancillary or other warehouses). In principle, inventories of materials, fuels and supplies should be valued at current replacement cost, based on purchasers' prices defined in paragraph 110 as of the reference date. Work in progress, ideally, should reflect an imputed valuation in producers' prices, as defined in paragraph 141, including an imputed margin for overhead costs and profits as well as the cost of materials consumed and labour used. Inventories of finished products and goods for resale should be valued in the producers' prices, defined in paragraph 141, at which goods have been shipped immediately prior to the reference date. Alternatively, the book values of the inventories might be requested. Since different methods of inventory valuation are used by business concerns, the definition of the value of the inventories aggregated for all establishments in an industry is not precise. The figures on changes in inventory are of considerably greater significance than the measurement of the level of inventories.

91. Materials, fuels and supplies. This item should include the value of stocks of all materials, parts and components that enter into the product; fuels; and repair, maintenance, office and other consumable supplies. Materials owned by the establishment, but held by others for processing, are included, whereas materials owned by others, but held by the establishment for processing are excluded. The value of stocks of materials and supplies for use in construction work undertaken for the establishment's own use should be included. Materials and supplies which are to be resold without processing should be included in stocks of goods for resale.

92. Work in progress. This item refers to the value of all materials which have been partially processed by the establishment, but which are not usually sold, shipped or turned over to other establishments without further processing. It should include all work in progress for the account of others, irrespective of the arrangements for financing the work. Work in progress on own-account production of machinery and equipment should be included but own-account construction work should be excluded and treated as part of fixed capital formation.

93. Finished goods. This should include all goods made by the establishment which are ready for shipment as of the reference date. Also included are finished goods held by another establishment that were processed by that establishment from materials owned by the respondent establishment. Excluded are finished goods held by the respondent establishment which were made from materials owned by others.

94. Goods for resale. This item covers the value of any stocks of goods that the establishment has bought with the intention of reselling in the same form, that is, without further processing or manufacturing. Stocks of materials and supplies to be resold without processing which were not originally purchased for that purpose should also be included.

Tabulation plan

95. Changes in the value of stocks during the year, as well as the values at the beginning and end of the reference year, should be tabulated by branch of industry in four-digit ISIC detail.

Table 4 (a). Value of stocks at the beginning and end of the year, classified by industry

Industry (four-digit ISIC)	Value of stocks at beginning of year					Value of stocks at end of year				
	Total	Materials, fuels and supplies	Work in progress	Finished goods	Goods for resale	Total	Materials, fuels and supplies	Work in progress	Finished goods	Goods for resale
Item →	6.1	6 (a).1	6 (b).1	6 (c).1	6 (d).1	6.2	6 (a).2	6 (b).2	6 (c).2	6 (d).2

Table 4 (b). Change in value of stocks during the year, classified by industry

Industry (four-digit ISIC)	Change in value of stocks during the year				
	Total	Materials, fuels and supplies	Work in progress	Finished goods	Goods for resale
Item →	6.2 minus 6.1	6 (a).2 minus 6 (a).1	6 (b).2 minus 6 (b).1	6 (c).2 minus 6 (c).1	6 (d).2 minus 6 (d).1

Section 4. Fixed capital formation

Introduction

96. Fixed capital formation is a very important element in a country's industrial economy. This section provides for the reporting of both new fixed capital acquired and gross additions to fixed assets.

Recommended items

97. The following list specifies the fixed asset categories recommended, with priorities indicated, for inclusion in the bench-mark census:

<u>Item number</u>	<u>Description</u>	<u>Priority</u>	
		<u>Developed statistical system</u>	<u>Developing statistical system</u>
7	<u>Gross additions to fixed assets</u>	1	1
7 (a)	Land	1	2
7 (b)	Buildings, other construction and land improvements	1	2
7 (c)	Machinery and other equipment	1	2
7 (d)	Transport equipment	1	2
7.1	<u>Cost of new fixed assets acquired, total</u>	1	1
7 (a).1	Buildings, other construction and land improvements	1	2
7 (b).1	Machinery and other equipment	1	2
7 (c).1	Transport equipment	1	2

Note: All of the items designated priority "1" in the table above for the particular country should be requested in an annual inquiry on industrial activity.

98. The data relating to expenditure on fixed assets should include the value of all physical assets acquired by the establishment for use by the establishment (land, buildings, machinery, equipment, vehicles) and expected to have a productive life of more than one year. Expenditure incurred in leasing fixed assets should be excluded and treated as a non-industrial cost (see para. 136). Included are major additions, alterations and improvements to existing fixed assets that extend their normal economic life or raise their productivity. Also included is the value of new fixed assets and additions and improvements to existing fixed assets made by the establishment's own labour for its own use.

Although capital repair is to be reported, expenditure for current maintenance and repair is excluded. Also excluded are transactions in financial claims, patent rights and timber and mineral rights.

99. Ideally, capital expenditure on fixed assets should be extended to include establishments where production had not yet commenced during the inquiry period. In practice, it usually will be difficult to determine which single-unit establishments should be surveyed, but such information should always be sought when multi-unit establishment returns are provided by a central administrative office.

100. Time at which expenditure takes place. Transactions in respect of fixed assets should generally be recorded when ownership passes. In the case of expenditure by an establishment on fixed assets, this should normally be considered to coincide with the time at which the assets are completed and delivered to the control of the establishment. As an exception, the value of construction work put in place should be recorded as an expenditure, whether or not the project is completed during the inquiry period. Therefore, the expenditure to be reported in the case of construction work should be calculated as follows: the total value of work completed during the inquiry period, less the amount of any progress payments made against this work prior to the inquiry period, plus all progress payments made during the period against work not yet finished by the end of the period. This definition treats progress payments for construction work and for other fixed assets differently. In some countries, this treatment may not be feasible and all progress payments may have to be recorded as expenditure on fixed assets.

101. Valuation. Fixed assets acquired from others should be included at the full cost incurred, that is, at the delivered price plus the cost of installation, including any necessary fees and taxes but excluding financing costs. Fixed assets produced by the establishment for its own use should be valued at the cost of all work put in place and overhead costs allocatable to the work should also be included. Fixed assets produced by one establishment of a multi-establishment enterprise for the use of another establishment of the same enterprise should be valued by the receiving establishment as though purchased from outside the enterprise. Used fixed assets sold during the inquiry period should be valued at the actual amount realized.

Definitions

102. Gross additions to fixed assets. This item is defined as the sum of the cost of new and used (those that have been previously used within the country) fixed assets acquired during the year less the value of sales of fixed assets in the year. As a means of obtaining more accurate data, the cost of used assets should be called for separately from the value of sales of assets and the difference between the two added to, or subtracted from, the reported cost of acquisitions of new fixed assets by the statistical office in computing "Gross additions to fixed assets".

103. Cost of new fixed assets acquired. The cost of fixed assets acquired during the year that have not been previously used in the country should be included in

this category. Newly imported fixed assets are considered as "new" whether or not they were used before they were imported. The total cost during the year for new construction, major alterations, capitalized repairs, improvement of buildings and capitalized site improvements (whether purchased from others or done by the establishment's own labour force) should be included.

104. Acquisitions of fixed assets are divided into the following categories: (a) land; (b) buildings, other construction and land improvements, including factories, offices and warehouses; elevators, cranes and other equipment essentially a part of the buildings (such as heating and ventilating units); other fixed structures (such as blast furnaces, brick kilns, fractionating towers, shipways and similar types of structures); the value of land before improvement is not to be included, although improvements to land such as roads, docks, tracks, car-parking facilities and fences made during the inquiry period are to be included; (c) machinery and other equipment (power-generating machinery; computers and peripheral data-processing equipment; metalworking machinery; mining, construction and other industrial machinery; cranes, forklift equipment and conveyors; durable containers; office machinery, equipment and furniture; and any other machinery and equipment and major renovations and alterations to these types of machinery and equipment); (d) transport equipment (motor vehicles, aircraft, ships, railway and tramway rolling stock, tractors for road haulage, carts and wagons and major alterations and improvements of existing transport equipment).

105. If a country has extensive oil or gas field operations, the examples provided of the types of machinery and equipment should be expanded to include those unique to such activities (such as drilling and production platforms, flow tanks, field separators, heater-treaters, gathering and injection lines and special downhole and surface equipment). Similar adaptations should be made when the country's dominant mineral activity happens to be metal mining, coal etc. Some countries may wish to combine "transport equipment" with "machinery and other equipment" because past bench-mark inquiries, including those in developed countries, have encountered reporting problems when requesting separate figures on "transport equipment".

Tabulation plan

106. The published tables in this subject field should show values for each type of fixed asset: (a) by branch of industry at the four-digit level of ISIC; and (b) by broad geographical area (province, state etc.), cross-classified at the three-digit ISIC level.

Table 5 (a). Fixed capital formation and its composition, classified by industry

Industry (four- digit ISIC)	Value of gross additions to fixed assets				Cost of acquisitions of new fixed assets				
	Total	Land	Buildings, other construc- tion and land improve- ments	Machinery and other equipment	Transport equipment	Total	Buildings, other construc- tion and land improve- ments	Machinery and other equipment	Transport equipment
Item →	7	7 (a)	7 (b)	7 (c)	7 (d)	7.1	7(a).1	7(b).1	7(c).1

Table 5 (b). Fixed capital formation and its composition, classified by geographical area and industry

Geographi- cal area by three- digit ISIC	Value of gross additions to fixed assets				Cost of acquisitions of new fixed assets				
	Total	Land	Buildings, other construc- tion and land improve- ments	Machinery and other equipment	Transport equipment	Total	Buildings, other construc- tion and land improve- ments	Machinery and other equipment	Transport equipment
Item →	7	7 (a)	7 (b)	7 (c)	7 (d)	7.1	7(a).1	7(b).1	7(c).1

Section 5. Input costs, including detailed materials, energy and services

Introduction

107. This section deals with the nature of the industrial input into each industry, that is, the input into the productive process of goods and services. Input is itemized in terms of materials and supplies, fuels, electricity, and the industrial services of other establishments. Also included is a separate discussion of non-industrial services. The section is divided into four parts, as follows: (1) the composition of industrial input cost according to broad classes of inputs; (2) heat and energy sources, that is, detailed fuels and electricity; (3) individual materials, parts and components purchased for production and (4) other operating costs and services of a non-industrial character.

Part A. Cost of materials, energy and services used

Recommended items

108. The following items are recommended for inclusion in the bench-mark inquiries covering this subject area:

<u>Item number</u>	<u>Description</u>	<u>Priority</u>	
		<u>Developed statistical system</u>	<u>Developing statistical system</u>
8	Cost of materials and industrial services used, total	1	1
8 (a)	Cost of materials, parts, components etc.	1	1
8 (b)	Cost of purchased fuels	1	1
8 (c)	Cost of purchased electricity	1	1
8 (d)	Cost of contract and commission work done by others	1	2
8 (e)	Cost of repair and maintenance work done by others	1	2
8 (f)	Cost of goods purchased expressly for resale	1	2
6 (a).1-	Changes in stocks of materials, supplies etc. <u>a/</u>		
6 (a).2			

Note: All of the items designated priority "1" in the table above for the particular country should be requested in an annual inquiry on industrial activity.

a/ Calculated from information collected in sect. 3.

109. The recommendations on the reporting of inputs in the programme relate to purchases of goods, fuels etc. rather than consumption. This concept has been adopted for two reasons - data on purchases are more readily available in establishment records than are data on consumption and the collection of information will therefore be facilitated in countries with less developed industrial statistics; furthermore, the "purchases" concept is more widely used, or is being adopted, by many countries. Even in developed countries, many establishments keep their input records in terms of purchases (or receipts) instead of consumption. Countries that have traditionally gathered input data on a consumption basis - the alternative concept included in previous recommendations - are not expected to make any changes in this respect in the interest of standardization. The ideal concept is to measure the materials, fuels, etc. actually consumed or put into production during the inquiry year, which can be approximated by adjusting for changes in stocks of materials, supplies etc. (item 6 (a).1 less item 6 (a).2).

Valuation of inputs

110. The valuation of total input and its components should be in terms of current purchasers' prices. That is, the valuation of goods purchased should be at the delivered value at the establishment, including the purchase price, charges for transport, the cost of insurance, the value of packaging materials charged for, and all taxes and duties on the goods. Discounts or rebates allowed to the purchaser and the value of packing material returned to suppliers should be deducted. Purchasers' prices are equivalent to producers' prices (defined in sect. 6) plus the trade and transport charges incurred in delivering the commodities from the producer to the purchaser. Goods received by the establishment from other establishments of the same enterprise should be valued as if purchased. In practice, it may be necessary to accept the book values in the accounts of the shipping plant. Where both establishments of the enterprise make returns, the shipping plant should report the goods as sales at the same value as the receiving plant, less appropriate costs for transport and handling.

Definitions

111. Cost of materials, parts, components, containers etc. This includes all goods (excluding fixed assets) delivered to the control of the establishment in the inquiry period and owned by the establishment (or by the legal entity to which the establishment belongs). All materials etc. received are included whether purchased from other enterprises or transferred from other establishments of the same enterprise. The time of receipt of the goods should be related to the definition of inventories, in the sense that goods should be considered as received at the time such goods are entered in the inventory account of the establishment. The item includes materials purchased or received by the establishment for the production by the unit itself of capital goods for its own use and materials and parts used for own-account repair and maintenance work on own buildings, structures, machinery and other fixed assets. Also included is the cost of materials purchased and owned by the establishment but consumed by other

enterprises in making products for that establishment under contract. The data obtained for this item should cover: (a) all raw materials, fabricated parts, components and so on that are physically incorporated into the products of the establishment (fuels that directly enter the product should also be included here, including fuels used for the generation of electricity); (b) auxiliary materials consumed during the production process, such as lubricants, water, explosives, polishes and office supplies; (c) purchased ready-made containers and packaging material, as well as raw materials for their manufacture by the establishment.

112. Cost of purchased fuels. This covers the total cost during the reference year of all fuels received by the establishment, except fuels that enter the product or are consumed for the generation of electricity. The category relates to all fuels consumed for heat and power. Included are anthracite and bituminous coal, coke, natural and manufactured gas, fuel oil, liquefied petroleum gas, gasoline and all other fuels, including purchased steam. For selected industries, such as blast furnaces, coke ovens and carbon black, some of these fuel types may be used as raw materials, as well as being consumed as fuels. In such cases, the cost of these fuel types used as raw materials should be included under "Cost of materials, parts etc.". The cost of the fuel types used as fuels should be covered in this item. Excluded is the estimated cost of fuels, such as sawdust or blast furnace gas, produced as a by-product of manufacturing activities in the establishment.

113. Cost of purchased electricity. The total electric energy purchased during the year from other enterprises, or received from other establishments of the same enterprise is included. The value of electricity generated and used at the same establishment is excluded. In principle, the electricity obtained from other establishments of the same enterprise should be valued as though obtained at the commercial rate normal to the area; in practice, it may be necessary to accept the book value of the electricity supplied in such cases.

114. Cost of contract and commission work done by others. This covers payments (including freight out and in) made by the establishment for contract and commission work done by others during the year on materials controlled by the establishment. The cost of similar work carried out by other establishments of the same enterprise should be included. Payments to homeworkers should also be included in this item and some countries may wish to record this item separately.

115. Cost of repair and maintenance work done by others. This covers the total cost to the establishment of current repair and maintenance services on buildings and other fixed assets of the establishment provided by others, including other establishments of the same enterprise, during the year. Current repair and maintenance services are those required to make good any breakage or to keep fixed assets in proper working condition. In the case of buildings, outlays on painting, replacing damaged gutters and plumbing, or repairing lighting or heating systems should be included. Capital repair outlays, that is, expenditure on the improvement and alteration of the durable goods which significantly extend the expected lifetime or productivity, should not be included here but should be reported as capital expenditure in section 4.

116. Cost of goods purchased expressly for resale. The cost of all goods that were purchased expressly to be resold without any transformation or processing is included.

117. Changes in stocks of materials, supplies etc. This item is obtained from the data collected in section 3 (item 6 (a)). It is calculated by deducting the value of the stocks of materials, fuels and supplies at the end of the year from the value of these stocks at the beginning of the year.

Tabulation plan

118. The table for this section should show total input cost (including purchased industrial services) and the principal components of input according to branch of industry in four-digit ISIC detail.

Table 6 Cost of materials and industrial services used,
classified by industry

Industry (four-digit ISIC)	Total	Materials and supplies	Fuels	Electricity purchased	Contract and commis- sion work	Repair and main- tenance	Goods purchased expressly for resale	Changes in stocks of materials etc.
Item →	8	8 (a)	8 (b)	8 (c)	8 (d)	8 (e)	8 (f)	a/

a/ Calculated from data collected in sect. 3 (item 6 (a).1 less item 6 (a).2).

Part B. Purchases of individual fuels and electricity
and total energy consumption

Recommended items

119. The following items are recommended for inclusion in the bench-mark inquiry on the purchase of fuels and the purchase, generation and sale of electricity:

<u>Item number</u>	<u>Description</u>	<u>Priority</u>	
		<u>Developed statistical system</u>	<u>Developing statistical system</u>
9	Quantity and cost of individually important fuels	1	1
10 (a)	Quantity of electricity purchased	1	1
10 (b)	Quantity of electricity generated	1	2
10 (c)	Quantity of electricity sold	1	2
	Total energy consumed	1	2

Note: Annual inquiries should include all of the items designated above as "1", although the degree of detail on fuels may be reduced from the bench-mark inquiry or the item included only every other year or so. Electricity should be covered every year because of its usefulness as a measure of energy need and usage and as an indicator of capital intensity in industry for the particular country.

Definitions

120. Quantity and cost of individually important fuels and total cost of fuels purchased. The selection of individual fuel types will be determined by the usage pattern of the particular country. The following is a suggested list of principal fuel types:

- (a) Coal
- (b) Coke (including breeze)
- (c) Fuel oil
- (d) Natural gas
- (e) Liquefied petroleum gases (propane, butane etc.)
- (f) Other fuels (steam, gasoline, wood etc.)

Fuel oil may be divided into distillate (including light diesel) and residual (including heavy diesel) types. Individual countries may wish to distinguish separately one or more of the fuel types grouped above in "Other fuels". Both quantity and cost should be obtained for each fuel listed separately, except for "Other fuels", where there is no homogeneous physical measure and only the cost should be obtained. The collection of fuel data in terms of standard physical units permits the estimation of total energy consumption by the statistical

organization conducting the census or annual inquiry. The guidelines outlined earlier on the valuation of inputs (see para. 110) and on the cost of purchased fuels (see para. 112) apply here also. Excluded are: (a) fuels produced and consumed in the same establishment; and (b) fuels purchased as raw materials to enter into the product and fuels consumed in the generation of electricity.

121. Quantity of electricity purchased. This refers to the quantity (in kilowatt-hours) of all electricity purchased by the establishment during the year.

122. Quantity of electricity generated. This is defined as the total quantity (in kilowatt-hours) of electricity generated in the establishment (gross less generating station use) during the year, including that part of such energy that may have been sold or transferred.

123. Quantity of electricity sold. This is defined as the quantity (in kilowatt-hours) of electricity sold to other enterprises or transferred to other establishments of the same enterprise.

124. The quantity of electricity consumed is equal to the quantities purchased and generated, less the quantity sold to others. However, for the electricity industry (ISIC 4101), consumption is defined as the quantity of electricity used by the producers, transmitters and distributors of electricity in their establishments, but excluding the electricity used for auxiliary services, for pumping and network losses.

125. Total energy consumed. This item is derived by adding the total consumption of electricity to the total energy equivalent of fuels consumed, both expressed in terajoule terms. Where it is known that stocks of fuels tend to fluctuate widely, it may be desirable to request quantities of the individual fuels in stock at the beginning and end of the reference period. This will enable the statistical organization compiling the data to estimate fuel consumption more accurately than would be possible using estimates based on purchases. The data for electricity and individual fuels, collected in terms of standard physical units, are converted into terajoule equivalent by the statistical organization compiling the data (see table 8 below). The terajoule equivalent is an accepted standard of measurement recommended by a United Nations Expert Group on the Classification and Measurement of Energy Statistics. The joule is a unit of work or energy equivalent to the amount of work done or heat generated by a current of one ampere acting for one second against a resistance of one ohm. (There are 3.6 million joules in one kilowatt-hour.) The calculation of total energy consumption is an important feature of the published results of the census.

Tabulation plan

126. The tables for this section should show the items of information classified: (a) by industry, in four-digit ISIC detail; and (b) by broad geographical area (province, state etc.), cross-classified by three-digit ISIC.

/...

Table 7 (a). Cost of fuels purchased and quantity and cost of principal fuels, classified by industry

Industry (four-digit ISIC)	Total cost of fuels purchased	Fuel A		Fuel B		Fuel C		All other fuels Cost	
		Quantity	Cost	Quantity	Cost	Quantity	Cost		
Item →	8 (b) or 9 (g)	9							

Table 7 (b). Cost of fuels purchased and quantity and cost of principal fuels, classified by geographical area and industry

Geographical area by three- digit ISIC	Total cost of fuels purchased	Fuel A		Fuel B		Fuel C		All other fuels Cost	
		Quantity	Cost	Quantity	Cost	Quantity	Cost		
Item →	8 (b) or 9 (g)	9							

Table 8 (a). Energy equivalent in terajoules of fuels and electricity consumed, classified by industry

Industry (four-digit ISIC)	Total energy consumed (terajoules)	Energy equivalent of fuels consumed (terajoules)	Electricity consumed				
			Total (terajoules)	Total (kWh)	Purchased (kWh)	Generated (kWh)	Sold (kWh)
Item →	a/	a/	a/	10(a)+10(b)-10(c)	10(a)	10(b)	10(c)

a/ Calculated by the statistical authorities.

Table 8 (b). Energy equivalent in terajoules of fuels and electricity consumed, classified by geographical area and industry

Geographical area by three-digit ISIC	Total energy consumed (terajoules)	Energy equivalent of fuels consumed (terajoules)	Electricity consumed				
			Total (terajoules)	Total (kWh)	Purchased (kWh)	Generated (kWh)	Sold (kWh)
Item →	a/	a/	a/	10(a)+10(b)-10(c)	10(a)	10(b)	10(c)

a/ Calculated by the statistical authorities.

Part C. Purchases of selected individual materials

Recommended items

127. This section of the **programme** is designed for the reporting of information on the purchases of selected individual materials, parts and components by industrial establishments, irrespective of the branch of industry in which these establishments are classified.

<u>Item number</u>	<u>Description</u>	<u>Priority</u>	
		<u>Developed statistical system</u>	<u>Developing statistical system</u>
11	Quantity and cost of selected individual materials	1	1

Note: An annual inquiry should not, as a rule, attempt to collect data on individual materials, parts and components (see below for further discussion).

Definitions

128. Information should be collected on the purchases of major materials, parts and components used in manufacturing or mining. Coverage should be restricted to those materials which are important parts of the cost of production in particular industries and for which cost information is available from industry records. Both quantity and cost should be obtained for each material listed separately, except for "All other materials, parts, components, containers etc.", which serves as a balancing item whereby the respondent is instructed that the total of the cost of the individual material items must agree with the cost figure reported for "Cost of materials, parts etc." (item 8 (a)). The **guidelines** provided on the valuation of inputs (para. 110) and on the cost of materials, parts etc. (para. 111) are pertinent here also.

129. The items for which separate data on purchases should be compiled may be surveyed on either a complete coverage or a limited coverage basis. In selecting a material for complete coverage, every industry that consumes appreciable quantities of the material is canvassed so that the data represent a large proportion of manufacturing (or mining) consumption. Because industry uses an enormous variety of materials, the choice of materials for which "complete coverage" consumption data are obtained has to be strictly limited. The selection of a particular material for such coverage should be based on the following criteria:

(a) The importance of the material as measured by the total value of the particular country's consumption of the material;

(b) The percentage of total consumption accounted for by manufacturing (or mining) establishments; and

(c) The availability of consumption information from establishment records.

For materials covered on a more limited basis, information on consumption is obtained only in those industries in which the materials are important inputs. The materials included on a "limited coverage" basis are also chosen sometimes because they provide information necessary to classify establishments by ISIC industry.

130. A useful list of selected products and materials was provided in part II of the 1973 World Programme recommendations. 15/ In that publication, a description is given of each commodity and the physical unit of measurement to be used in reporting is specified. The selection of commodities was largely based on the list used by the Statistical Office of the United Nations in its questionnaire on industrial commodity production statistics. For convenience in reference, the list has been arranged according to: (a) ISIC-based codes; (b) SITC-based codes; and (c) the alphabetical sequence of commodity titles. The list is not intended to take the place of a comprehensive classification of products or materials. Such a classification is available at the international trade level in the Standard International Trade Classification, Revision 2 (SITC) 16/ and, in addition to the 1973 programme list, an ISIC-based commodity classification has been prepared by the Statistical Office (E/CN.3/493). The 1973 list of selected products and materials is likely to be too limited to form the basis for the detail required at the national level in the 1983 bench-mark inquiries. It should, however, provide minimum specifications for such work and a satisfactory standard for the international reporting of product and materials data for the year.

131. For national purposes, a commodity classification linked with both the national industry classification and, if possible, the national classification of foreign trade statistics should normally be used in the compilation of commodity consumption data.

132. In industries where the establishment's range of activities encompasses several successive manufacturing stages, it may be useful to request, separately, the quantity of selected important intermediate products that are produced and consumed within the same establishment during the year. The information may be collected in a "Produced and consumed" column in either the detailed materials or the products inquiry. These data are particularly useful if the products in question are final products marketed by many other establishments and are the purchased materials of other establishments.

15/ Recommendations for the 1973 World Programme of Industrial Statistics, Part II, List of Selected Products and Materials, Statistical Papers, Series M, No. 54 (United Nations publication, Sales No. E.71.XVII.16).

16/ Statistical Papers, Series M, No. 34, Rev.2 (United Nations publication, Sales No. E.75.XVII.6.)

Tabulation plan

133. The table recommended for this section presents the purchases of those materials called for separately in the 1983 inquiry for a particular country.

Table 9. Purchases of selected individual materials

Code	Name of material	Unit of measurement	Quantity	Delivered cost
Item →			11	

Part D. Cost of non-industrial services

Recommended items

134. The following item is recommended for inclusion as a priority "2" item in the bench-mark inquiry.

<u>Item number</u>	<u>Description</u>	<u>Priority</u>	
		<u>Developed statistical system</u>	<u>Developing statistical system</u>
12	Cost of non-industrial services rendered by others	2	2

Note: This item should not be requested as a total but in terms of its component parts, such as rental payments and communication costs (see discussion below). As specific non-industrial services are determined to be reportable, they may be added to the country's annual inquiry.

Definitions

135. This item covers payments made by the establishments during the reference year for other operating costs relating to services of a non-industrial nature. The actual payments made should be reported. The collection of such data enables the statistical authority to refine its calculation of census value added and more closely approximate value added as defined for national accounting purposes (see the discussion of value added in section 7). It is recommended that countries should proceed with great care in gathering data in this subject area, inquiring thoroughly into industry record-keeping practices and pretesting proposed items.

136. The collection of data on the cost of purchased business services at the establishment level presents many problems. **Basically, the problem is concentrated** in the multi-establishment enterprise and stems from **the** manner in which the charges are entered on the enterprise's books of account. For example, advertising purchased by industrial concerns is frequently charged at the enterprise level and the cost either not allocated to individual establishments of the enterprise or, if allocated, only included as part of a broader enterprise overhead category. For these reasons, many countries, including those with developed industrial statistics, do not collect data on payments for non-industrial services, or, if they make an attempt to do so, select the principal services that are reportable at the establishment level and call for these separately. Commonly recognized examples of such services are communication costs **and rental payments for buildings and machinery**. **A comprehensive list of non-industrial services would also include bank charges other than interest, travel and subsistence costs, advertising, legal, accountancy and consulting services etc.**

Tabulation plan

137. The following table is recommended for instances where information is obtained on selected non-industrial services.

Table 10. Cost of selected non-industrial services

Industry (four-digit ISIC)	Non-industrial service A	Non-industrial service B	Non-industrial service C
Item →	12		

Section 6. Gross output, including detailed products

Introduction

138. This section relates to the measurement of gross output by branch of industry in terms of the major types of activity contributing to the output of the establishment. Gross output consists of products, industrial and non-industrial services and miscellaneous receipts of industrial establishments. The section is divided into three parts as follows: (1) the composition of output by principal category; (2) shipments of selected individual products; and (3) receipts for non-industrial services.

Part A. Value of output and its composition

Recommended items

139. The items recommended for inclusion in this section and their priority are shown below:

<u>Item number</u>	<u>Description</u>	<u>Priority</u>	
		<u>Developed statistical system</u>	<u>Develoning statistical system</u>
13	Value of output	1	1
13 (a)	Value of all products shipped	1	1
13 (b)	Receipts for contract and commission work done for others	1	2
13 (c)	Receipts for repair and installation work for others	1	2
13 (d)	Other receipts for industrial services, including sales of scrap and refuse	1	2
13 (e)	Sales of goods bought and resold in the same condition	1	2
13 (f)	Fixed assets produced for own account	1	2
	Changes in stocks of finished goods for resale and work in progress <u>a/</u>		

Note: All of the items designated priority "1" in the table above for the particular country should be requested in an annual inquiry on industrial activity.

a/ Calculated from information collected in section 3.
items 6(b).2 + 6(c).2 + 6(d).2 - 6(b).1 - 6(c).1 - 6(d).1.

140. It is recommended that output should be obtained in terms of shipments rather than production. The experience in many countries shows that establishments find it easier to provide information about the value of sales than about the value of production. Use of the shipments concept for measuring output requires inventory adjustments for finished goods, goods for resale and work in progress, which can be calculated from information collected in section 3 (items 6 (b), 6 (c) and 6 (d)). Countries that collect data on a production basis will be able to calculate output for value-added purposes by including only adjustments for changes in the value of work in progress and stocks of resale goods.

Valuation of output

141. Output should be measured in producers' prices, that is, at the establishment price charged to the customer. The valuation should include all duties and taxes which fall on products when they leave the establishment. Any subsidies received should be excluded. Price rebates and discounts and allowances on returned goods allowed to the customer should be deducted.

142. In principle, shipments to other establishments within the same enterprise should be valued as though sold. In practice, however, it may be necessary to accept the book value of such transfers. Where both establishments make census returns, the receiving establishment should report the same items as purchases at the same value, plus costs of freight and handling.

Definitions

143. Value of all products shipped. This item includes all goods produced and shipped by the establishment or by other organizations from materials supplied by the establishment. Included are transfers from the producing establishment to another establishment of the same enterprise, including transfers to wholesale and retail selling organizations under the same ownership.

144. Receipts for contract and commission work. This item includes the value, at actual invoice prices, including taxes, of contract and commission work done for others on materials owned by them during the reference year. Contract and commission work consists of the processing, transforming or assembly of materials supplied by the units which order the work. Similar work done for other establishments of the same enterprise should be included and, if practicable, valued at an estimated market price; if this is not feasible, the actual costs, including overhead charges, should be reported. Excluded is the value of materials supplied to the establishment doing the contract work.

145. Receipts for repair and installation work done for others. This item covers the value, at actual invoice prices, including taxes, of repair, maintenance and installation work rendered to other enterprises or to other establishments of the same enterprise or to individual customers. The invoice price should include, in addition to labour and overhead costs, charges for materials supplied by the establishment in the course of the work.

146. Other receipts for industrial services, including sales of scrap and refuse. This item covers industrial work done and services rendered others except those activities specified in the categories above. The value of electricity sold by the establishment should be included here. Also included is research and development work of an industrial nature.

147. Sales of goods bought and resold in the same condition. Included in this item is the invoice value, including taxes, of all goods that were resold during the reference year without any transformation or processing.

148. Value of fixed assets produced for own account. This item covers the value of new fixed assets and additions and improvements to existing fixed assets made by the establishment for its own use during the inquiry period. The valuation should include labour costs and the cost of materials used during the reference period, as well as overheads apportionable to the work, and should represent the value entered in the establishment's capital account.

149. Changes in stocks of finished goods, goods for resale and work in progress. This item is calculated from the information on stocks obtained in section 3. It represents the value of the stocks of finished goods, resale goods and work in progress at the end of the year, less the value at the beginning of the year.

Tabulation plan

150. The table for this section should show total output, in producers' prices, and the principal components of such output according to branch of industry in four-digit ISIC detail.

Table 11. Value of output in producers' prices classified by industry

		Value of output in producers' prices						
Industry (four- digit ISIC)	Total	Value of all products shipped	Receipts for contract and commis- sion work	Receipts for repair and installa- tion work	Other receipts	Goods sold as received	Fixed assets produced for own account	Changes in stocks of finished goods etc.
Item →	13	13 (a)	13 (b)	13 (c)	13 (d)	13 (e)	13 (f)	a/

a/ Calculated from information collected in section 3
(items 6(b).2 + 6(c).2 + 6(d).2 - 6(b).1 - 6(c).1 - 6(d).1).

Part B. Output of selected individual products

Recommended items

151. This section of the 1983 inquiry is designed for the reporting of information on the output of selected individual products by industrial establishments, irrespective of the industry in which the establishments are classified:

<u>Item number</u>	<u>Description</u>	<u>Priority</u>	
		<u>Developed statistical system</u>	<u>Developing statistical system</u>
13 (a)	Quantity and value of individually important products	1	1

Generally, annual inquiries should call for product information at the product level, using a product reference list which specifies the groups (or classes) of products and their code numbers, the appropriate ones of which will be entered on the blank lines in the "Products shipped" inquiry of the questionnaire by the enumerator or the respondent. On the reference list, the product classes should be coded according to the national classification or ISIC, tailored to the nature of the particular country's industrial output, and arranged by those codes. The same technique may be adopted by developing countries in their bench-mark census in order to avoid the multiple questionnaires that are usually necessary when the individual products are pre-printed on the report forms. Countries undertaking censuses for the first time should strive to include in them their industries' most important individual products, using a reference list for reporting purposes, as desired.

Definitions

152. As a general rule, both quantity and value of shipments information should be collected for the specified individual products. If, however, there is no significant physical quantity measure that can be reported, only the value of shipments should be requested for the particular product. The category, "All other products made and shipped by the establishment" should always be included in the detailed products inquiry as a residual or balancing item, so that the respondent may be told that the sum of the individual product categories must equal the figure reported for "Value of all products shipped". The guide-lines provided on the valuation of output (paras. 141 and 142) and on the value of all products shipped (para. 143) are applicable here also.

153. The data on shipments should represent total shipments of the specified product wherever made, that is, shipments by establishments for which the commodity is a primary product, as well as shipments by establishments producing the

commodity as a secondary product. Also, the total quantity of products produced should be obtained, since for some products there are likely to be significant differences between total production and shipments during the reference year. For products that are produced and then used to a large degree within the same establishment, as materials or components in the fabrication of other products, the total quantities produced and consumed within the plant should be collected. Alternative measures of output of products, such as "value of work done", for products with long production cycles, should be used when appropriate and feasible.

154. The term "product", as used in an industrial census, represents the finest level of detail for which output information is requested. Consequently, it is not necessarily synonymous with the term "product" as used in the marketing sense. In some cases it may be much more detailed, and in other cases it will be more aggregative.

155. A suggested list of commodities for which separate data on output might be compiled in a bench-mark inquiry is presented in Part II of the recommendations for the 1973 World Programme (see para. 130 above for a description of that publication). For national purposes, a commodity classification linked to both the national industry classification and, if possible, the national classification of foreign trade statistics should be used in the compilation of commodity output data. Guidance on the development of such a commodity classification will be found in the studies prepared by the Statistical Office of the United Nations in the course of developing a commodity classification for national accounting purposes (E/CN.3/493).

Tabulation plan

156. The table recommended for this section presents the output of individually important products by industrial establishments.

Table 12. Output of selected individual products

Code	Name of product	Unit of measurement	Total quantity produced	Shipments	
				Quantity	Value
Item-->	13 (a)				

Part C. Receipts for non-industrial services

Recommended items

157. The following item is recommended for inclusion as a "priority 2" item in the bench-mark inquiry:

<u>Item number</u>	<u>Description</u>	<u>Priority</u>	
		<u>Developed statistical system</u>	<u>Developing statistical system</u>
14	Receipts for non-industrial services	2	2

Definitions

158. This item should include all revenue attributable to the establishment concerned for the provision to others of services of a non-industrial nature. The following types of revenue should be included: revenue from the rental or lease of industrial equipment or buildings; revenue from the operation of cafeterias, hostels and other employee facilities, except dwellings; commissions received; receipts for transport services rendered to others, other than delivery of own product; receipts for storage of goods, warehousing etc.; receipts for the right to use patents, trademarks, copyrights etc. and any other revenue arising from the production of goods or rendering of services not elsewhere specified.

159. The collection of data on this item may present problems for establishments of multi-unit enterprises because of the practice of recording some of these types of revenue at the enterprise level only. For this reason, it may be advisable to select for collection only those services that are reportable at the establishment level and to rely on other procedures for the total information required (see para. 167 below).

160. On the other hand, some establishments may have difficulty in distinguishing non-industrial receipts from industrial receipts in their book-keeping records. In this circumstance, the combined total will have to be accepted, although the information may be apportioned later, on the basis of other establishment records.

Tabulation plan

161. The following table is recommended where information is obtained on receipts for non-industrial services:

Table 13. Receipts for non-industrial services

Industry (four-digit ISIC)	Total	Non-industrial receipts		
		A	B	C

Section 7. Value-added measures

Introduction

162. This section deals with value added and presents alternative measures of value added. As the term implies, value added is the increment to the value of commodities and services that is contributed by the producing establishment, that is, the value created by the establishment. Aggregated for all establishments in a given industry, value added is the incremental value of goods and services attributable to that industry.

163. Value added avoids the duplication in the value of shipments (or production) which results from the inclusion of shipments of establishments producing materials and components together with the shipments of establishments producing finished products. Therefore, value added is considered to be the best value measure for comparing the relative economic importance of different industries and geographical areas.

Recommended items

164. There are two alternative measurements of value added, "census value added" and value added as defined for the national accounts. Each of these concepts should be considered for inclusion in this section and their priority is indicated below:

<u>Description</u>	<u>Priority</u>	
	<u>Developed statistical system</u>	<u>Developing statistical system</u>
"Census value added" (see para. 165)	1	1
Value added, as defined for national accounts (see para. 166)	2	2

Note: Census value added should be compiled in the annual inquiries both of countries with developed industrial statistics and of countries in the process of developing their programmes.

Definitions

165. Respondents do not report value added but rather the items required for the calculation of value added. Value added, in the census concept, is defined as the value of **output (defined in section 6), less the cost of materials and industrial services used (defined in section 5)**. The calculation of value added is made by the national statistical organization in the processing of the establishment data.

166. Value added, defined in the above manner, is not net value created in relation to the economy as a whole but is net only in terms of the agricultural and industrial sectors of the economy. To derive a wholly net value added, it is necessary to exclude, in addition to the cost of materials and purchased industrial services, the purchases of non-industrial services, and to include non-industrial receipts. This additional calculation moves towards value added in the national accounting sense. The national income concept in the national accounts also excludes depreciation charges, that is, the consumption of fixed capital.

167. The collection of data on the cost of non-industrial services at the establishment level is, however, fraught with difficulty in the case of multi-unit enterprises (see para. 136). In such enterprises, data are only available at that level for certain non-industrial services, such as communication costs and rental payments. Other non-industrial services, such as advertising or legal, accounting and other professional services, are charged at the enterprise or divisional level. Such charges might be allocated back to the individual establishments of the enterprise, either according to the proportion of total enterprise wages and salaries or value added represented by each establishment, or by assigning to each establishment of the multi-unit enterprise estimated costs for the specified service as reported by single-unit enterprises of similar size and in the same type of industry. Alternatively, total payments for non-industrial services might be estimated by the national accounts staff. To some extent, the same situation exists in relation to the collection of data on receipts for non-industrial services, and corresponding solutions should be attempted.

168. The work of the compilers of the national accounts is facilitated if, when only some non-industrial services are measured in the bench-mark census or annual inquiry, as will usually be the case, the cost of each such service is recorded separately. Most countries are not gathering data on purchases of non-industrial services, or else, even where certain types of such services are measured, they are continuing to calculate and publish value added according to the census concept. Such countries are, however, presenting the selected non-industrial services costs in their published tables, both for their informational value and to reduce the amount of estimation facing the compilers of the national accounts.

169. Consumption of fixed capital should include the value, at current replacement cost, of the reproducible fixed assets used up during the year as a result of normal wear and tear, foreseen obsolescence and the normal rate of accidental damage.

Tabulation plan

170. The tables below display value added as a census concept and as defined in the national accounts. Value added is generally shown in historical tables, comparing bench-mark census figures with those of prior censuses or annual surveys.

Table 14 (a). Value added and its composition, classified by industry

Industry (four-digit ISIC)	Value added in producers' prices	Output in producers' prices	Cost of materials and industrial services used
Item →	a/	13	8

a/ Census value added calculated in table above as follows: Item 13 less item 8.

Table 14 (b). Value added and its composition, classified by geographical area and industry

Geographical area by three-digit ISIC	Value added in producers' prices	Output in producers' prices	Cost of materials and industrial services used
Item →	a/	13	8

a/ Census value added calculated in table above as follows: Item 13 less item 8.

Table 15. Value added as an approximation of the national accounting concept and its derivation, classified by industry

Industry (two-digit ISIC) (Column (a))	Census value added (see table 14) (Column (b))	Total payments for non- industrial services (Column (c))	Receipts for non- industrial services (Column (d))	Value added in terms of the national accounts (Column (e)) = Columns (b) - (c) + (d)	Consumption of fixed capital (Column (f))
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