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INDUSTRY, ENERGY AND ENVIRONMENT STATISTICS:
STATISTICS OF MINERAL RESOURCES

Progress in the development of statistics of mineral resources

Report of the Secretary-General

SUMMARY

The present report has been prepared in response to Economic and Social Council resolution 1983/53. It provides a review of developments related to the collection and dissemination of internationally comparable statistics on minerals. After reviewing the steps taken over the past 10 years to foster the international comparability of data on reserves, production and consumption of mineral resources, the report discusses the recommendations of the Group of Experts on the Standardization of Definitions and Terminology for Statistics on Mineral Production and Consumption and their implications for the work programme of the Statistical Office in that field.

* E/CN.3/1985/1.

CONTENTS

<u>Chapter</u>	<u>Paragraphs</u>	<u>Page</u>
INTRODUCTION	1 - 2	3
I. REVIEW OF STEPS TAKEN TO STANDARDIZE DEFINITIONS AND TERMINOLOGY FOR MINERAL RESOURCES	3 - 7	3
II. RECOMMENDATIONS OF THE GROUP OF EXPERTS ON THE STANDARDIZATION OF DEFINITIONS AND TERMINOLOGY FOR STATISTICS ON MINERAL PRODUCTION AND CONSUMPTION	8 - 18	4
A. Range of minerals covered by the Statistical Office ..	11 - 14	5
B. Mineral consumption statistics and raw material balances	15 - 16	5
C. Secondary recovery of metals	17 - 18	6
III. CONCLUSIONS	19	6
IV. POINTS FOR DISCUSSION	20	6

Annexes

I. Background note on the collection of production statistics on minerals and metals by the Statistical Office	8
II. Recommendations on coverage of minerals by the Statistical Office of the Group of Experts on the Standardization of Definitions and Terminology for Statistics on Mineral Production and Consumption	14

INTRODUCTION

1. The Economic and Social Council, in its resolution 1983/53 of 28 July 1983, recognized the continuing need for internationally consistent and easily understood statistics on mineral production and consumption. By that resolution, the Council endorsed the report of the Secretary-General on the standardization of definitions and terminology for mineral resources (E/C.7/1983/9) and requested the Secretary-General to take into account the recommendations in the report relating to the activities of the United Nations in the reporting, compilation and publication of statistics on mineral production and consumption and to consider which additional activities would be required to implement those recommendations, including those concerning definitions and terminology for individual minerals and metals, and statistics on the secondary recovery of metals. The Council further requested the Secretary-General to report on the progress made in pursuance of those requests to the Statistical Commission at its twenty-third session.

2. The present report has been prepared in response to the above-mentioned resolution. It provides a brief account of the work undertaken thus far, followed by a description of the steps that have been taken or will soon be taken by the Statistical Office as well as of those actions that would require the Statistical Commission's guidance and approval.

I. REVIEW OF STEPS TAKEN TO STANDARDIZE DEFINITIONS AND TERMINOLOGY FOR MINERAL RESOURCES

3. Mineral resources are vital to the world economy. Maintaining an orderly supply of minerals to the world at large, meeting the progressive needs of emerging industries and ensuring an orderly evolution in the quest for economic self-sufficiency pursued by many developing countries that are dependent to a great degree on earnings from their mineral exports have made it all the more necessary to have a thorough knowledge of the world's mineral resources, including their production, consumption and trade. Acquiring that knowledge depends on the availability of comparable sets of statistical information for a number of variables on a global scale, based on agreed definitions and terminology.

4. The Economic and Social Council, by its resolution 1954 B (LIX) of 25 July 1975, recognized the need to find agreement on terminology used in categorizing mineral resources and requested the former Centre for Natural Resources, Energy and Transport 1/ to review the definitions and terminology for reserves, production and consumption that were being used in the mineral resources field. By that same resolution the Council also requested the Secretary-General to convene a group of experts "to prepare a report recommending a common set of definitions and terminology that might be used internationally for the purpose of reporting to the United Nations on mineral resources and to submit the report of the Group to the Committee on Natural Resources at its sixth session".

5. Pursuant to the resolution, the Group of Experts on Definitions and Terminology for Mineral Resources met at United Nations Headquarters from 29 January to 2 February 1979. At that meeting, the Group confined itself to the discussion of a classification of mineral resources and issues closely related thereto. It was decided not to address the definitions and terminology for production and consumption, as that task would require a different kind of expertise. It was recommended that another expert group, selected for that particular expertise, should be convened to complete the work specified by the Economic and Social Council in resolution 1954 B (LIX) (E/C.7/104, para. 32).

6. The Group's report (see E/C.7/104) was discussed by the Committee on Natural Resources at its sixth session 2/ and subsequently endorsed by the Economic and Social Council in its resolution 1979/72 of 3 August 1979. Noting the need for a separate handling of those problems relating to mineral production and consumption, the Council requested the Secretary-General to review present practices in the United Nations and other international organizations in reporting, compiling and publishing statistics on mineral production and consumption, including statistics on secondary recovery of metals and to convene subsequently a group of experts to develop a common set of definitions and terminology that could be used for the reporting, compilation and publication by the United Nations of statistics on mineral production and consumption, including secondary recovery of metals. The Council further requested that the group of experts to be appointed should report on the results of its work to the Committee on Natural Resources at its eighth session.

7. Pursuant to Council resolution 1979/72, the Group of Experts on the Standardization of Definitions and Terminology for Statistics on Mineral Production and Consumption met at United Nations Headquarters from 11 to 19 January 1983. The report of the Secretary-General on the work of the Group (E/C.7/1983/9) was endorsed by the Committee on Natural Resources at its eighth session 3/ and by the Economic and Social Council in its resolution 1983/53. That report contains a number of recommendations that are of direct concern to both the Statistical Office and the Statistical Commission.

II. RECOMMENDATIONS OF THE GROUP OF EXPERTS ON THE STANDARDIZATION OF DEFINITIONS AND TERMINOLOGY FOR STATISTICS ON MINERAL PRODUCTION AND CONSUMPTION

8. The Group of Experts on the Standardization of Definitions and Terminology for Statistics on Mineral Production and Consumption produced two separate sets of recommendations. While one set of recommendations was conceptual in nature, the other dealt with the operational elements of work in the area of statistics on minerals.

9. The conceptual recommendations of the Group of Experts dealt with a variety of issues, for example, the stage at which the mineral as well as metal production should be measured, the treatment of metallic and non-metallic minerals, the method by which consumption of a mineral commodity should be determined and a definition of "apparent" versus "reported" consumption.

10. This present report will focus on the operational recommendations of the Group. Those recommendations fall into three main areas: (a) the range of minerals covered by the Statistical Office, (b) mineral consumption statistics and raw material balances and (c) the secondary recovery of metals.

A. Range of minerals covered by the Statistical Office

11. After reviewing the list of minerals covered by the Statistical Office, the Group of Experts recommended that the Office should consider extending the coverage of its publications to include a number of additional minerals.

12. The Group also suggested that some mineral groups on which statistics were already compiled and published by the Statistical Office in aggregate form for example, clays should be broken down to provide much finer detail.

13. The Group also recommended that some changes should be made in the method of reporting and suggested, for example, that mine production of chromium and tungsten should be reported in terms of metallic content rather than metallic oxide equivalent.

14. Annex I below contains a brief background note describing the work of the Statistical Office on the collection and publication of production statistics on minerals and metals, together with a list of minerals covered. The specific recommendations made by the Group of Experts on the coverage of minerals by the Statistical Office are listed in annex II.

B. Mineral consumption statistics and raw material balances

15. The Group of Experts agreed that the Statistical Office should extend its activities in the area of mineral consumption statistics and raw material balances. However, it also suggested that extreme caution should be exercised before proceeding in that direction, and it clearly indicated that such an undertaking by the Statistical Office would require that substantial additional resources and expertise be made directly available to it because of the highly specialized knowledge required in connection with this kind of work. 4/

16. The Group suggested that

"for the present time prior emphasis should be given to the improvement of production, including secondary production, data and to minerals trade data. With the improvement in these data, apparent consumption (demand) statistics would show a corresponding improvement and the development of raw material balances would become a more feasible option. Meanwhile, it was recommended that the Statistical Office monitor the development of raw material balances produced by other organizations and, resources permitting, perhaps attempt one or two trial examples of its own". (E/C.7/1983/9, para. 66)

C. Secondary recovery of metals

17. The Group of Experts noted that the secondary recovery of metals had reached substantial proportions in recent years and that reference to it in Economic and Social Council resolution 1954 B (LIX) was an indication of its growing importance.

18. The Group also observed that the secondary recovery of metals embraced a complex set of issues with which it could not adequately deal. It, therefore, recommended that a separate expert group meeting should be convened to study secondary recovery; the group should include the specialists on that subject.

III. CONCLUSIONS

19. It is possible to implement the above recommendations if resources appropriate for that kind of undertaking are allocated and provisions are made to recruit staff having the required expertise. The work described in paragraphs 11-18 is being implemented to the extent possible through the use of existing resources. In fact, following the recommendations of the Group of Experts, the additional minerals referred to in the report of the Group (see annex II, para. 1) have already been incorporated into the questionnaire on industrial commodity production statistics, and the recipients of the questionnaire have been requested to provide available data on those new items. It is expected that the data reported by countries on those minerals and information obtained from other sources will, to the extent possible, be incorporated and published in the forthcoming edition of the Industrial Statistics Yearbook, volume II, Commodity Production Statistics. The other suggestions of the Group of Experts which deal with changes in reporting (see annex II, paras. 2 and 3) also will be implemented beginning with the forthcoming issue of the Yearbook mentioned above. Additional resources that may be required for the full implementation of all of the recommendations of the Group will be considered in the context of the overall requirements under section 6 of the proposed programme budget for 1986-1987.

IV. POINTS FOR DISCUSSION

20. The Commission may wish to:

(a) Comment on the work in progress and the present role of the Statistical Office in the collection and dissemination of internationally comparable data on mineral production;

(b) Consider the proposals and recommendations of the Group of Experts on the Standardization of Definitions and Terminology for Statistics on Mineral Production and Consumption for further work at the international level.

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Notes

1/ As the result of a structural reorganization of the Secretariat, the major part of the functions of the former Centre for Natural Resources, Energy and Transport of the Department of Economic and Social Affairs are now carried out by the Natural Resources and Energy Division of the Department of Technical Co-operation for Development.

2/ See Official Records of the Economic and Social Council, 1979, Supplement No. 9A (E/1979/69/Rev.1), chap. IX.

3/ Ibid., 1983, Supplement No. 8 (E/1983/19), chap. II, sect. D.

4/ The discussion here refers to the full report of the Group rather than to the summary report on the work of the Group that was submitted to the Committee on Natural Resources (E/C.7/1983/9).

Annex I

BACKGROUND NOTE ON THE COLLECTION OF PRODUCTION STATISTICS
ON MINERALS AND METALS BY THE STATISTICAL OFFICE

1. Work on the collection, compilation and publication of production data on minerals and metals by the Statistical Office dates back to the late 1940s. The Statistical Office started publication of those data with the first edition of the United Nations Statistical Yearbook in 1948. The first issue of the Yearbook contained historical data on the production of ferrous, non-ferrous and some non-metallic minerals as well as ferrous and non-ferrous metals. Since 1948 those statistics have been published in the Statistical Yearbook on an annual basis.
2. More recently, production statistics on minerals and metals have been published in greater detail in the Industrial Statistics Yearbook (formerly called the Yearbook of Industrial Statistics and, prior to 1974, published under the title of The Growth of World Industry), the first edition of which was issued in 1967.
3. The Monthly Bulletin of Statistics published by the Statistical Office also contains monthly production data on selected minerals and metals.
4. Minerals and metals data included in the publications mentioned above constitute part of the "List of selected products and materials" that includes about 550 industrial commodities on which the Statistical Office seeks to obtain information.
5. Data on industrial commodities are collected primarily by means of a "Questionnaire on industrial commodity production statistics". The questionnaire, in the form of a computer print-out, is regularly dispatched to nearly 200 countries and areas world-wide to collect all of the available information that those countries and areas are willing and ready to provide to the Statistical Office.
6. The returns provided by national statistical authorities constitute the basis of the commodity data compiled by the Statistical Office. Regarding data on minerals and metals, in the absence of responses from the recipients of the questionnaires, or in cases where the national statistical authorities do not or cannot supply information on a given item, the Statistical Office utilizes other sources, such as the specialized agencies, other intergovernmental bodies, private institutes and associations.
7. All of the information thus obtained is stored in the data base. The data base contains historical records on each commodity, standardized according to a common record format and coding structure, that is, by ISIC-based codes, country codes, quantity units that apply to each commodity, and quantities of production. Quantities are recorded in metric units, and, where applicable, additional records are kept for countries reporting data in units other than metric units.
8. Commodities classified under minerals include ferrous and non-ferrous ores as well as non-metallic minerals. In the metals group, statistics collected relate to the production of ferrous and non-ferrous metals and alloys.

9. The minerals and metals (excluding energy minerals) on which data are collected by the Statistical Office are listed below.

<u>ISIC-based code</u>	<u>Commodity name</u>
	FERROUS AND NON-FERROUS ORES
	<u>Ferrous ores</u>
2301-01	Iron ores and concentrates, gross weight
2301-01M	Iron-bearing ores, Fe content
	<u>Non-ferrous ores</u>
2302-01	Copper ores and concentrates, gross weight
2302-01M	Copper-bearing ores, Cu content
2302-04	Nickel ores and concentrates, gross weight
2302-04M	Nickel-bearing ores, Ni content
2302-07	Bauxite
2302-10	Lead ores and concentrates, gross weight
2302-10M	Lead-bearing ores, Pb content
2302-13	Zinc ores and concentrates, gross weight
2302-13M	Zinc-bearing ores, Zn content
2302-16	Tin concentrates, gross weight
2302-16M	Tin-bearing ores, Sn content
2302-19	Manganese ores and concentrates, gross weight
2302-19M	Manganese-bearing ores, Mn content
2302-22	Chromium ores and concentrates, gross weight
2302-22M	Chromium-bearing ores, Cr ₂ O ₃ content
2302-25	Tungsten concentrates, gross weight
2302-25M	Tungsten-bearing ores, WO ₃ content

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ISIC-based codeCommodity NameNon-ferrous ores (continued)

2302-28	Molybdenum ores and concentrates, gross weight
2302-28M	Molybdenum-bearing ores, Mo content
2302-31	Vanadium ores and concentrates, gross weight
2302-31M	Vanadium-bearing ores, V content
2302-34	Antimony ores and concentrates, gross weight
2302-34M	Antimony-bearing ores, Sb content
2302-37	Cobalt ores and concentrates, gross weight
2302-37M	Cobalt-bearing ores, Co content
2302-40M	Mercury, Hg recovered
2302-43	Platinum ores and concentrates, gross weight
2302-43M	Platinum-bearing ores, Pt content
2302-46	Silver ores and concentrates, gross weight
2302-46M	Silver-bearing ores, Ag content
2302-55	Gold ores and concentrates, gross weight
2302-55M	Gold-bearing ores, Au content

NON-METALLIC MINERALS

2901-01	Slate
2901-04	Marble, travertines, etc.
2901-07	Granite, porphyry, sandstone, etc.
2901-10	Limestone flux and calcareous stone
2901-13	Sand, silica and quartz
2901-16	Gravel and crushed stone
2901-19	Clays

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<u>ISIC-based code</u>	<u>Commodity name</u>
NON-METALLIC MINERALS (continued)	
2901-22	Magnesite
2901-25	Chalk
2902-01	Guano
2902-04	Natural phosphates
2902-07	Crude potash salts, K ₂ O content
2902-10	Sulphur, native, S content
2902-13	Iron pyrites, unroasted
2903-01	Salt, unrefined
2909-01	Diamonds, industrial
2909-04	Abrasives, natural
2909-07	Graphite, natural
2909-10	Asbestos
2909-13	Mica, crude
FERROUS AND NON-FERROUS METALS	
<u>Iron and steel</u>	
3710-04	Spiegeleisen and ferro-manganese
3710-07	Pig iron, foundry
3710-10	Pig iron, steel-making
3710-13	Other ferro-alloys
3710-16	Crude steel for castings
3710-19	Crude steel, ingots

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ISIC-based code

Commodity name

Non-ferrous metals

3720-01	Copper, blister and other unrefined
3720-04	Copper, refined, unwrought
3720-041	Copper, primary, refined
3720-042	Copper, secondary, refined
3720-07	Copper-base alloys
3720-08	Other copper alloys
3720-22	Aluminium, unwrought
3720-221	Aluminium, unwrought, primary
3720-222	Aluminium, unwrought, secondary
3720-23	Aluminium-base alloys
3720-24	Other aluminium alloys
3720-37	Lead, unwrought
3720-371A	Lead, primary, refined soft
3720-371B	Lead, primary, refined hard, antimonial
3720-372	Lead, bullion produced for export
3720-373A	Lead, secondary, refined soft
3720-373B	Lead, secondary, refined hard, antimonial
3720-374A	Lead, secondary, remelted soft
3720-374B	Lead, secondary, remelted hard, antimonial
3720-38	Lead-base alloys
3720-39	Other lead alloys

ISIC-based codeCommodity nameNon-ferrous metals (continued)

3720-43	Zinc, unwrought
3720-431	Zinc, primary, refined
3720-432	Zinc, secondary, refined
3720-433	Zinc, secondary, remelted
3720-44	Zinc-base alloys
3720-45	Other zinc alloys
3720-49	Tin, unwrought
3720-491	Tin, unwrought, primary
3720-492	Tin, unwrought, secondary
3720-55	Magnesium, unwrought
3720-551	Magnesium, unwrought, primary
3720-552	Magnesium, unwrought, secondary
3720-56	Magnesium-base alloys
3720-57	Other magnesium alloys

Annex II

RECOMMENDATIONS ON COVERAGE OF MINERALS BY THE STATISTICAL OFFICE
OF THE GROUP OF EXPERTS ON THE STANDARDIZATION OF DEFINITIONS AND
TERMINOLOGY FOR STATISTICS ON MINERAL PRODUCTION AND CONSUMPTION

1. The Group of Experts recommended that consideration should be given to the publication of production statistics for the following minerals (in the order included in the Group's report (E/C.7/1983/9, para. 65)):

Ilmenite and rutile

Niobium and tantalum minerals

Fluorspar

Boron minerals

Barytes

Talc

Gypsum

Arsenic

Quartz crystals

Zirconium minerals

Alumina (calcined equivalent of hydrate production)

Cadmium (metal)

Nickel (metal)

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2. The Group of Experts recommended that the following series should be broken down to provide greater detail:

<u>Currently shown</u>	<u>Suggested breakdown</u>
(a) Clays	Kaolin
	Bentonite/fuller's earth
	Kyanite/sillimanite
	Common clays
(b) Other ferro-alloys	Ferro-chromium (including ferro-silico-chromium and charge chrome)
	Ferro-nickel
	Ferro-molybdenum
	Ferro-silicon

3. The Group of Experts recommended the following changes in the method of reporting:

(a) Changes relating to metallic content:

<u>Mineral</u>	<u>Currently shown</u>	<u>Suggested change</u>
Chromium-bearing ores	Cr ₂ O ₃ content	Cr content
Tungsten-bearing ores	WO ₃ content	W content

(b) Other changes:

- (i) Statistics on the production of natural phosphate should indicate P₅O₅ content;
- (ii) The mine production of chromite and manganese should be subdivided into materials scheduled for specific uses (e.g., refractories, chemical and metallurgical);
- (iii) A broad distinction should be made for the production of mica between that produced in book form (sheets or splittings) and that produced as scrap and powder.
