** The gap between the need for ADEQUATE INFORMATION REGARDING INDUSTRIAL TOPICS at a national and Community level and the availability of such information in useable form is of great concern in the Community of the Nine. The evolution of the Community towards economic and monetary union will necessitate a considerably improved statistical infrastructure if the coordination of economic development at Community level is to be achieved.

This was the point emphasized by Mr Grierson, the European Commission's Director-General for Industrial and Technological Affairs, in the introductory report which he read at the International Conference on Economic Information and Industry, held at Liège on 4-6 June 1973 by the Commission of the European Communities and the Institut de Recherches en Economie de la Production, of the University of Paris X (Nanterre). ANNEX 1 contains a summary of this report.

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The information and articles published in this Bulletin concern European scientific cooperation and industrial development in Europe. Hence they are not simply confined to reports on the decisions or views of the Commission of the European Communities, but cover the whole field of questions discussed in the different circles concerned.

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** REMOTE SENSING OF EARTH RESOURCES by aircraft and satellites will become of primary importance in the near future. New techniques for observation from space which are very much more accurate than simple aerial photography will make it possible to supplement the inventory of mineral, petroleum, agricultural, forestry, hydraulic and marine resources, to facilitate decisions regarding the essential infrastructure for agricultural and industrial development, to ensure more effective prevention of natural disasters and to exercise better supervision of the environment on a global scale.

The Community could not ignore a technique capable of contributing towards the efficient and rational exploitation of natural resources both in the industrialized and in the developing countries. For this reason the European Commission has put forward a programme for Community research on the remote sensing of earth resources as part of the Community's multiannual research programme which was adopted by the Council of Ministers on 6 February 1973 (see IRT No. 175). ANNEX 2 gives the details of this programme.

** ANNEX 3 gives a selection of RECENT PUBLICATIONS acquired by the scientific and technical library of the Commission of the European Communities. These works may be consulted at the library (1, avenue de Cortenberg, 1040 Brussels, Loi Offices, Room 1/43) or borrowed.

** The first meeting in the Council of the Ministers of the Community responsible for ENVIRONMENTAL PROTECTION in the various member countries will be held in Brussels on 19 and 20 July 1973 for the purpose of studying the action programme presented by the European Commission with a view to establishing a Community policy for the environment (see IRT No. 185).

** The European Investment Bank has granted Industriekreditbank AG (IKB), Düsseldorf, a loan equivalent to DM 70 million (20 million u.a.). This is an overall loan which Industriekreditbank will use, after approval by the European Bank, to finance SMALL- AND MEDIUM-SCALE INDUSTRIAL PROJECTS in those regions of the Federal Republic of Germany which face problems arising from development lags and industrial conversion.

The European Investment Bank has also granted a loan equivalent to DM 15 million (4.3 million u.a.), to be used to finance a factory for the production of hydraulic excavators, scrapers, pile drivers and telescopic cranes in Schleswig-Holstein (Germany), and two loans totalling 23,000 million lira (33.1 million u.a.) for two projects in Southern Italy.

** As provided for in the Decision taken by the Council of Ministers for Energy during their meeting of 22 May 1973 (see IRT No. 191), the representatives of the member countries of the Community held a preliminary meeting with the representatives of the European Commission before the meeting of the OECD Council of 7 June 1973 on ENERGY PROBLEMS.

** Two facts which are incompatible with the principles affirmed by the Member States at the Ministerial conference in Bonn on the ENVIRONMENT (see IRT Nos. 162, 164 and 165) were raised by Mr Oele, Member of the European Parliament, in a Written Question to the European Commission:

- certain Member State governments and the Swiss Government have agreed on a scale of allocation under which one of the principal polluters of the Rhine will receive financial aid for the purpose of combating such pollution: this constitutes a derogation from the principle of "making the polluter pay", which was adopted at Community level;

./.

- Belgium intends to construct a refinery and a petrochemical complex at Ternaaien, not far from the Netherlands frontier and very close to a nature reserve in the Netherlands, whereas it was agreed at the Bonn conference that a Member State may not undertake activities likely to harm the natural environment of another Member State.

In its reply to this Written Question, the European Commission states that the intergovernmental agreement on cross-frontier pollution, under which the cost of storing some of the salt released into the Rhine will be financed from public funds, constitutes an exception to the principle of "making the polluter pay". The Commission points out that the overall problem of cross-frontier pollution is still being studied and considered at international level, especially through the OECD and the Council of Europe as regards both civil liability and the allocation of costs.

In addition, the communiqúe of the Bonn Conference of Ministers for the Environment states, as one of the principles adopted, that care should be taken to ensure that the activities of one country do not cause deterioration in the environment of another. The same communiqúe mentions that one of the initiatives to be taken in the initial stages should be consultation on aspects of the environment in frontier areas. The European Commission points out that in its communication to the Council of Ministers concerning a Community programme for the environment (see IRT Nos. 109 and 185), it proposed that efforts be made to achieve harmonization of quality objectives for the environment in frontier areas. The example quoted by Mr Oele clearly illustrates the need for consultation between the Member States with a view to joint action in this field, without prejudice to any action the Community itself may take.

** The year 1972 saw a SHARP RISE IN THE SHORT-TERM DEMAND FOR ENRICHED URANIUM in the six original Member States of the Community. Apart from special imports under a contract between Germany and the USAEC as part of an "offset agreement", imports of enriched uranium for immediate needs increased by 73% between 1971 and 1972 (as against 8% between 1970 and 1971). Almost 10,000 kg of uranium-235 was imported to meet the requirements for power reactors already in service and for those expected to become operational in 1974. The share destined for non-member countries, after processing in Community plants, is likewise increasing, having risen from 6% in 1971 to 16% in 1972, thus reflecting greater participation by the Community's nuclear industry in processing operations on behalf of non-member countries.

As in previous years, most of the enriched uranium is still of American origin, since the United States is virtually the only country to possess civilian enrichment plants. The first deliveries from Soviet sources are not expected until the beginning of 1974.

** The signing of the Convention establishing a EUROPEAN MEDIUM-RANGE WEATHER FORECASTING CENTRE, which had been scheduled for 21 May 1973 (see IRT No. 190), has been postponed.

** The Euratom Supply Agency has for the first time issued an invitation to uranium producers in the Community to tender for the supply of NATURAL URANIUM FOR PURCHASE. The natural uranium must be delivered to the United States Atomic Energy Commission (USAEC); this is the only way in which the Community will be able to buy the enriched uranium which it has hitherto leased from the USAEC and which is at present in the Community. The leased fissile material is to be used in various research reactors, institutes and universities in Belgium, West Germany, France, Great Britain, the Netherlands and Italy, as well as in the installations of the Joint Research Centre. As a result of this invitation to tender, the order was placed with Urangesellschaft (Frankfurt), which has already begun delivery.

ECONOMIC AND INDUSTRIAL INFORMATION

(summary of a lecture by Mr Grierson, the European Commission's Director-General for Industrial and Technological Affairs)

There is widespread concern throughout the Community of the Nine at the gap that exists between the requirements at national and community level for information on and understanding of the industrial facts of life and the availability of such information in a usable form. The evolution of the Community towards economic and monetary union will necessitate a considerably improved statistical network if the coordination of economic development at Community level is to be achieved. This was the point emphasized by Mr Grierson, the European Commission's Director-General for Industrial and Technological Affairs, in the introductory report which he read to the International Conference on Economic and Industrial Information, held at Liège on 4-6 June 1973 by the Commission of the European Communities and the Institut de Recherches en Economie de la Production, of the University of Paris X (Nanterre).

As creator of the raw data input, the industrial organization of today is showered with a steadily growing stream of statistical surveys and multi-part questionnaires covering a wide range of the enterprise's activities which are often constructed in such a manner that the accounting and control methods normally used by the organization do not produce the required data in the form requested. Hence the organization may be involved in further processing of its own data, with a corresponding expenditure of manpower, time and money. While this factor may be marginal for large companies equipped with data-processing facilities, it may be an onerous task for small- or medium-sized firms which may thus be tempted to provide less-than-accurate figures or to file the questionnaire in the nearest wastepaper basket. This situation

can be avoided only if industry itself is convinced that the effort it must make to supply the information requested is commensurate with the benefit it may obtain, either directly or indirectly, from the analysis of its contributions.

It is unfortunately the case that the end-consumers of this information, including industry itself, public authorities, government services and Community departments, are to a large extent dissatisfied with and frustrated by the poor quality and long delays often associated with some of the most important types of analysis. Moreover, the disparity or complete absence of comparable national figures in many sectors makes consistent monitoring of industrial development at Community level extremely difficult.

There is also an absence of a clear consensus in each sector examined as to the objectives to be achieved. Thus the choice of data collected and the form of analysis is as likely to be decided by the statistical office processing the information as by the industrial or governmental end-user. It may thus not provide the best picture of the sector concerned or allow the most pertinent conclusions to be drawn. For example, the gross tonnage output is readily available for many heavy industries whereas product-mix, operating efficiency or capacity-employed indices would be of far more use but are seldom obtainable.

Another cause of confusion is the frequent comparison of non-comparable items resulting from the false assumption that categories with the same nomenclature in different sectors or countries have the same definitions. Thus conclusions are falsely drawn by comparing sets of figures that in reality have no common base. Often these differences are recognized by the national statistical offices, who nevertheless persist in retaining their own independent systems of classification. Their "a posteriori" efforts to harmonize their

results on an international basis are not always successful - a fact of which the recipient of the analysis may not be aware. It is, for example, impossible even today to break down the Community labour force into as few as a dozen sectors or categories in a consistent manner throughout the nine member countries.

A further complexity may be added to the complexities of national or sector comparison, namely that of the unavailability of complete time-series owing to changes of classification or definition. Many industrial or economic factors are redefined from time to time (the metamorphosis cycle seems to be about 3 years) and consequently there are regular discontinuities in the analysed data. On account of the shortages of manpower and funds, the reconstruction of old series on the basis of the new is often postponed for an indeterminate period, thereby considerably reducing their usefulness.

In a practical sense, one of the key factors governing the utility of any statistics is the time-lag between the period to which they relate and the time when they become available to the user in analytical form. It is one of the present weaknesses in the processing chain that certain categories of information analysis may be several years old before their publication. Notwithstanding the availability today of computers capable of processing enormous quantities of data at extremely high speed, the delays even appear to be on the increase in certain cases. This is the result of bottlenecks in the data-collection and input stages which take place at human rather than electronic speeds. Clearly, serious attention must be given to reducing the delays with improved systems of data collection and input, since the usefulness of the final figures is generally in inverse proportion to the time taken to obtain them.

A final problem in information is that of professional secrecy. The

general principle applicable to national statistical offices is that no statistical information should be made available that can be directly attributed to a particular enterprise unless that enterprise permits it. However, national company law in the Member States requires a considerable amount of information to be published in the annual accounts of all public companies and it is thus difficult to see why such information should not be incorporated directly into the relevant national analyses. Moreover, certain industrial sectors have come out in favour of the obligatory exchange of more information that is available at present, specifically in such fields as investment planning, but again on the basis of secrecy of source.

The Community attaches special importance to the problem of economic information. The existence of adequate statistics is important not only for the industrial sector but also for the management of national economies and for intra-Community coordination of economic development. The European Commission, the Economic and Social Committee, the European Parliament and the Council of Ministers have frequently emphasized the shortcomings of the Community statistics at present available and the need to improve the Community's statistical apparatus.

REMOTE SENSING OF EARTH RESOURCES

The remote sensing of earth resources from aircraft and satellites will become of primary importance in the near future. New techniques of observation from space which are very much more accurate than simple aerial photography will make it possible to supplement the inventory of mineral, petroleum, agricultural, forestry, hydraulic and marine resources, to facilitate decisions regarding the essential infrastructure needed for agricultural and industrial development, to ensure more effective prevention of natural disasters and to effect world-wide monitoring of the environment (ecology, soil, water, etc.).

Although most of the applications envisaged are still in the research stage, the remarkable efforts made in the United States and the successes recently obtained already foreshadow operational use in the near future.

The European Community could not ignore a technique capable of contributing towards the efficient and rational exploitation of natural resources both in the industrialized and in the developing countries. For this reason, the European Commission has put forward a programme for Community research on the remote sensing of earth resources as part of the Community's multiannual research programme which was adopted by the Council of Ministers on 6 February 1973 (see IRT No. 175). Implementation of the programme has been assigned to the Ispra Establishment of the Joint Research Centre.

The remote sensing of earth resources is made possible by the fact that every object on the earth's surface absorbs, reflects and emits electromagnetic energy on distinct specific wavelengths in the infra-red, visible ultraviolet and radio-frequency zones.

Once these spectral characteristics have been collected, compared and analysed it is possible to distinguish between objects and to derive information as to their size, shape, density and other physical and chemical properties.

Because some characteristics show up clearly on one particular wavelength but are not discernible on another, simultaneous images in different spectral bands must be recorded, thus making it possible to observe phenomena not visible to the human eye or by aerial photography.

Although the principles of remote sensing are now well-known, there is still much to be learnt as regards the spectral "signatures" of the different categories of object on the earth's surface: absorption, emission and reflectivity vary immensely, depending on the time, climate and seasons; atmospheric transmission effects and corrections due to the angle of observation may be of considerable importance.

The observation platforms used are aircraft, balloons, rockets and a NASA Earth Resources Technology Satellite (ERTS) which has been making 14 daily sun-synchronous polar orbits at an approximate height of 915 km above the earth since 23 July 1972. On 1 March 1973, 33,000 scenes had been recorded by ERTS, making a total of 1,500,000 pictures. The interpretation of these pictures has made it possible to provide systematic surveys of crops, forests, soil types, snow fall, hydrological data, geomorphological characteristics which can be usod in land improvement, etc. This interpretation calls for highly complex methods of calculation and the use of powerful computers.

On board the ERTS the data acquisition instruments comprise sensors in the visible and near infra-red zones (multispectral scanner and

vidicon camera) linked to magnetic tape recorders. Recorded or real-time data can be picked up by receiving stations in the US and Canada when the satellite passes overhead.

Identical scanners can be used on specially equipped aeroplanes, as well as passive or active mircowave devices (side-looking radar) and long-range infra-red radiometers.

A total of 300 principal investigators, selected by NASA, in 37 countries are taking part in the ERTS-1 programme.

ERTS-1 is to be followed by ERTS-B, for which NASA has requested research proposals. Under the Joint Research Centre's four-year programme, the European Commission has submitted to NASA a research proposal entitled AGRESTE, for evaluating the potential of new methods for the remote detection of earth resources. The subjects chosen were drawn up in close collaboration between the Commission's Directorates-General for Agriculture and for Development Aid, the Statistical Office, the Joint Research Centre (Ispra Establishment) and 11 French and Italian specialized research institutes situated in the areas being observed. The proposal relates exclusively to applied research (agronomic and agricultural) and the results will be directly usable.

In addition to research on methods of analysing and interpreting the data gathered by ERTS-B and in the course of any associated missions flown by aircraft, a series of ground-based experiments and field-surveys are an important part of this collaboration.

The test sites are:

Italy: Mortara-Vercelli, Lake Maggiore, Cuneo;

France: Camargue, Vallée de la Garonne, Montagne Noire;

Madagascar: Hauts-Plateaux (Central Plateau).

The aims are as follows:

Irrigated crops:

Inventory of rice fields, relationship between biomass and yield, identification of diseases.

Sylviculture:

Identification of poplar plantation, of isolated reafforestation with conifers, and of natural beechgroves.

Phenological identification, ecological relationships and identification of diseases.

Although the number of researchers employed by the European Commission on this work is quite small, the Commission attaches no less importance to it as regards both the possible future availability of a promising general method and the exemplary significance attaching to the pooling of the scientific interests and skills of an international team of agronomists, physicists, foresters, data-processors, ecologists, etc.

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