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INDUSTRIAL DEVELOPMENT BOARD

First session

New York, 10-28 April 1967

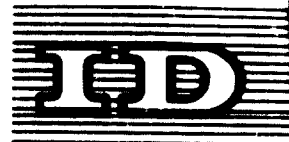
Agenda item 5

ACTIVITIES OF THE UNITED NATIONS SYSTEM OF
ORGANIZATIONS IN THE FIELD OF INDUSTRIAL DEVELOPMENT

Second Consolidated Report of
the Industrial Development Activities of
the United Nations System of Organizations

67-04144

We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche.



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INDUSTRIAL DEVELOPMENT BOARD
First session
New York, 10-28 April 1967
Item 5 of the provisional agenda

ACTIVITIES OF THE UNITED NATIONS SYSTEM OF
ORGANIZATIONS IN THE FIELD OF INDUSTRIAL DEVELOPMENT

Second Consolidated Report of the Industrial Development
Activities of the United Nations System of Organizations

Corrigendum

1. On page (ix) between the fifth and sixth line from the bottom, add the following:

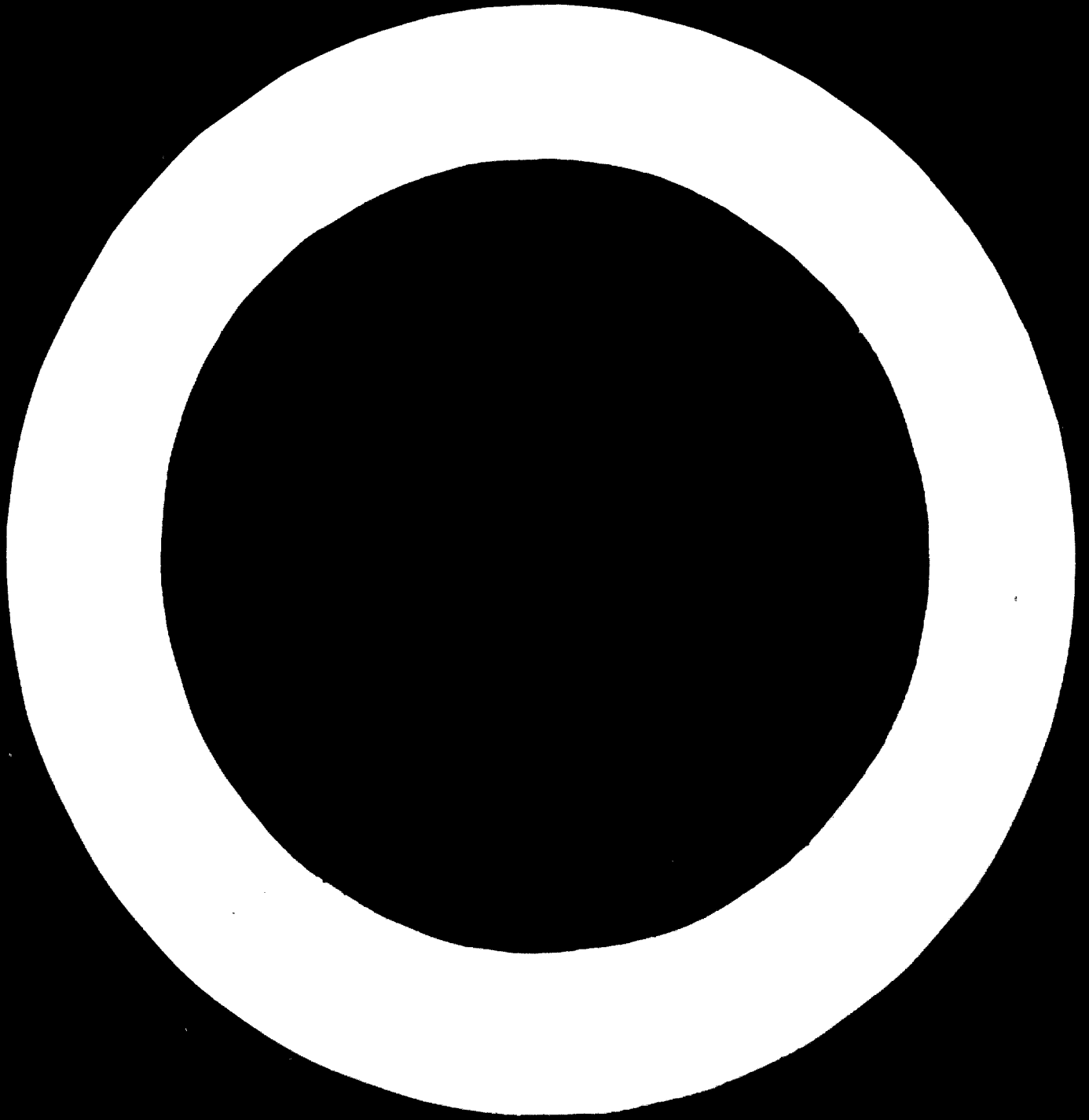
UNESOB United Nations Economic and Social Office in Beirut.

2. On page 19, under subchapter C of Chapter I add the following:

I.C.9 UNESOB project: Technical meeting on the Classification of Trade and Industrial Statistics and Related Questions

Authority: ECOSOC resolution 765 (XXX) and Report of the Eleventh Session of the Statistical Commission of ECOSOC.

Description: This project is conceived as an important step beyond the efforts made so far through advisory services to individual countries by the regional adviser in statistics attached to UNESOB, for assisting countries in the Middle East in the classification of their trade statistics according to the Standard International Trade Classification (SITC), Revised and of their industrial statistics according to the International Standard Industrial Classification (ISIC). Much progress has already been made in connexion with the former and it remains to promote a common approach to the solution of the problems arising out of the adoption of SITC, Revised.



With respect to the latter, which raises problems related to those experienced in the classification of trade statistics, a good start has been made and progress can be stimulated by having Governments exchange views and experience on the adoption of ISIC.

Related questions include those arising in connexion with trade statistics analysis, and, for industrial statistics, with drafting of questionnaires, collection of data and presentation of results.

This meeting which is planned for 1968, is expected to pave the way for a meeting on national income accounting in 1969.

3. On page 51 under subchapter F of Chapter II add the following:

II.F.14 UNESOB project: Comparative study on Investment Patterns and Industrial Growth Prospects in Selected Countries in the Middle East

Authority: General Assembly resolution 2178 (XXI) and Economic and Social Council resolution 1180 (XLI).

Description: This study, which is a follow-up of the studies on selected industrial development problems prepared in 1966, is for submission to the 1967 International Symposium on Industrial Development organized by UNIDO.

4. On page 123 under subchapter A of Chapter IV add the following:

IV.A.37 UNESOB project: Study on Small-Scale Industries in Selected Countries in the Middle East

Authority: General Assembly resolution 2152 (XXI).

Description: This study aims at examining and analysing policies, programmes and promotion measures, problems of finance and possibilities of regional co-operation for the development of small-scale industries, as suggested by the 1966 Kuwait Conference on Industrial Development in the Arab Countries in its recommendation No. 38 and by the Consultative Group on Industrial Estates which met at UNESOB in November 1966.

IV.A.38 UNESOB project: Meeting on the Development of Small-Scale Industries

Authority: General Assembly resolutions 2152 (XXI) and 2178 (XXI).

Description: This project is intended to provide an opportunity to the countries having participated in the Consultative Group on Industrial Estates which met at UNESOB in November 1966 for following up the discussion of the group on small-scale industries and for concentrating on the problems experienced in the development of these industries, the importance of which has been stressed both by the Consultative Group and, earlier, by the 1966 Kuwait Conference on Industrial Development in the Arab Countries.

Policies and techniques for the promotion of small-scale industries, the financing of these industries, the marketing and promotion of their products, as well as the role of small-scale industries in regional development, are the major questions to be placed on the agenda of the meeting, which is planned for 1968.



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First session
New York, 10-28 April 1967
Agenda item 5

ACTIVITIES OF THE UNITED NATIONS SYSTEM OF
ORGANIZATIONS IN THE FIELD OF INDUSTRIAL DEVELOPMENT

Second Consolidated Report of the Industrial
Development Activities of the United Nations System of Organizations

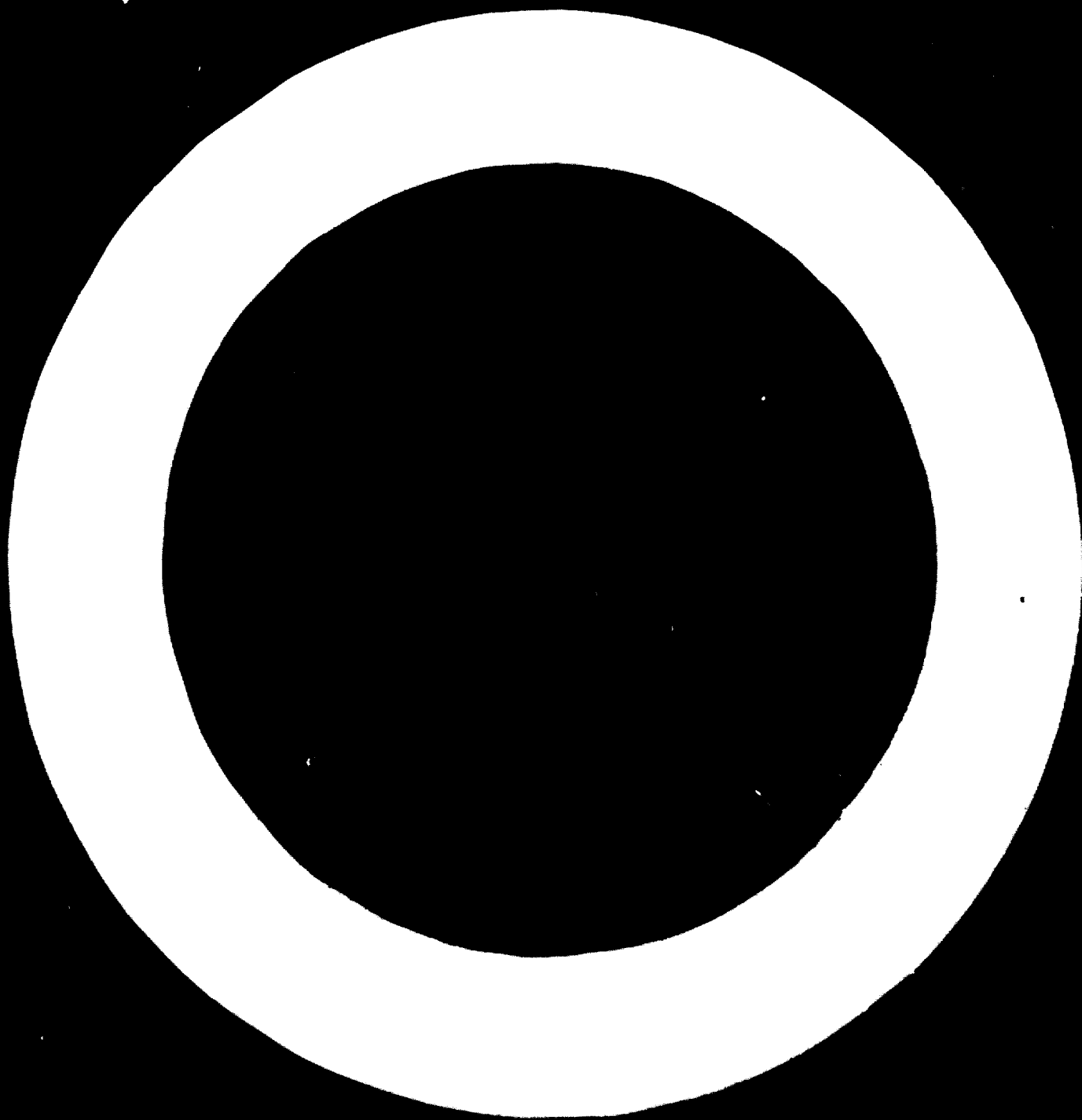
Corrigendum

1. On page 217 please correct "IV.A.19" to read "VI.A.19"
2. On page 217 please add the following:

VI.A.20 United Nations Participation in the International Foundry
Congress

The International Foundry Congress was held in India, December, 1966. The main theme of the congress was the "Technical developments as the means to increase productivity in Foundry Industry". Twenty-four papers were submitted by members of the International Foundry Technical Association. Eight of the above-mentioned papers were contributed by international experts in diverse fields of foundry technology on behalf of the Centre for Industrial Development, including two by the staff of CID.

The United Nations awarded technical assistance fellowships to 10 observers from Turkey, Iran, Gabon, Congo, Nigeria, Philippines, Costa Rica, Chile, Brazil and Liberia. These observers undertook the pre and post Congress tours in India visiting light and heavy foundry industries besides participating in the main session of the International Foundry Congress. The main theme highlighted during the United Nations technical sessions related to the growth pattern of foundry industry in developing countries based on the following important technical and economic parameters:



- (a) Resources and availability of raw materials, vis. foundry sands and moulding materials including teutonites and mentmorillonite clays, synthetic silica sands, sircon sands;
- (b) Proximity of such reserves at (a) to the foundry industrial plants and their regional locations vis-a-vis prevailing transport systems and their transport cost structure;
- (c) Availability of ferrous and non-ferrous metals and ferro-alloys supplies to the foundry units - their indigenous availability and imports and their relative cost structure;
- (d) Status of foundry equipment and plant supplies within the country, including moulding boxes and handling equipment, melting equipment and heat-treatment furnaces;
- (e) Degree of plant mechanization and automatic flow of materials within the plant to attain mass production levels consistent with optimum quality output;
- (f) Labour and production costs of the foundry castings including plant overheads and recurring amortization figures vis-a-vis overall economics of integrated plant operations;
- (g) Internal market and export patterns within the national policies and international trade structure;
- (h) The impact of the growth of the foundry industry in reducing the import bill of the developing countries and promoting substitution of such imports by home-made castings;
- (i) The scope of foundry industry in providing employment potential and training ground for supervision and industrial management;
- (j) The extent to which the development of foundry industry causes the in tandem growth of other engineering and allied industries of diversified nature and the scope and specialization of such diversification;
- (k) The inherent value and importance of the growth of foundry industry in contributing to national revenues and their feedback value to the industry in return.

Other important subjects discussed at the International Foundry Congress related to the planning of foundry industry and its growth on regional basis, mechanization and plant layout of foundries, developments in smelting technology and foundry equipment, latest technological innovations in casting techniques including precision investment casting technology and physical and foundry properties of liquid metals. During the discussions and inter-group meetings, specific technological themes were elaborated of direct value to developing countries in the range of foundry end products, the means to attain requisite quality of the product-mix, adaptation of latest technological innovations including oil and gas fired cupola technology, standardization of foundry castings, malleable products, the use of latest electric production furnaces, developments in foundry sands, moulding materials and bentonites, researches into and testing procedures of foundry raw materials and end products. At the general technical sessions, stimulating discussions classified the applications of modern scientific methods, choice of suitable equipment, size and layout of foundry plants including their mechanization, to developing countries. Delegates from advanced countries also benefited from the range of studies relating to the developments of foundry technology in their countries and how these could be implemented in developing countries vis-a-vis their raw materials and market structure.

- VI.A.21 A publication containing technical contributions by international experts and by C.I.D. staff specialists, sponsored by the C.I.D. on important foundry technological themes, industrial and underlying basic studies, was brought out by the International Foundry Congress.

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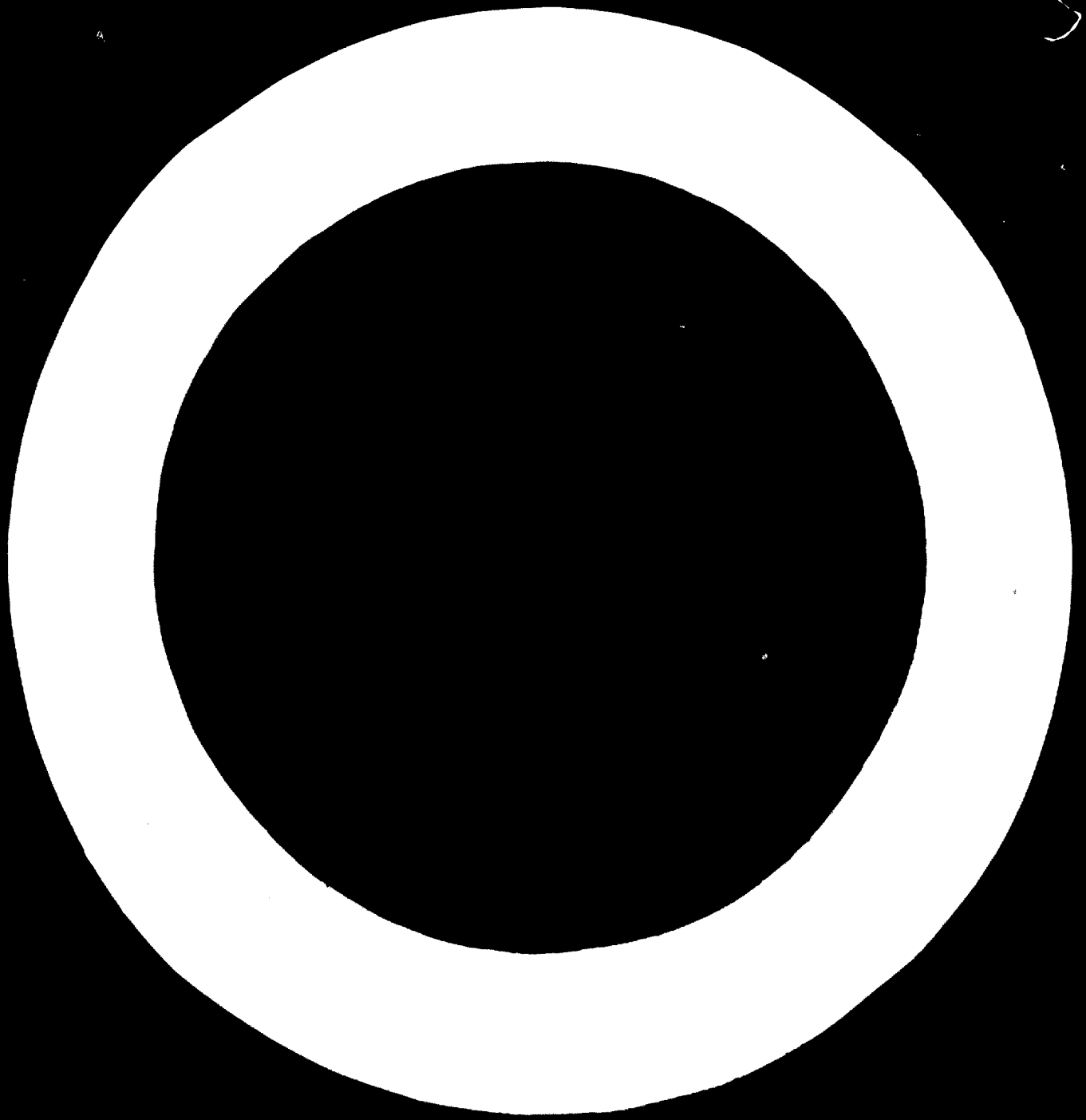
*Annexes I and II will be issued separately as addendum I to this document.

General Note

1. The first Consolidated Report of the Industrial Development activities of the United Nations System of Organizations was submitted at the sixth session of the Committee for Industrial Development E/C.5/125/Add.1 in response to resolution 1081-D (XXXIX) of the Economic and Social Council. In compiling the Second Report, the various organisations within the United Nations system who report on their respective activities were requested to follow the guidelines set out by the ECOSOC in its resolution 1181 (XLI). To the extent possible an attempt has been made to follow in the presentation of each project a standard set of headings as proposed in that resolution.
2. The material in the lettered sections within each chapter is arranged, in so far as its content permits, into groupings of studies, meetings and technical assistance projects.
3. Technical co-operation projects listed in the report are largely carried out under programmes financed by the United Nations Development Programme, except for those projects supported from the regular budgets of the participating organisations and specific extra budgetary sources.

Throughout the text, the following abbreviations have been used:

BSA	Bureau of Social Affairs
BTAO	Bureau of Technical Assistance Operations
CID	Centre for Industrial Development
ECA	Economic Commission for Africa
ECAFE	Economic Commission for Asia and the Far East
ECE	Economic Commission for Europe
ECLA	Economic Commission for Latin America
EPTA	Expanded Programme for Technical Assistance
FAO	Food and Agriculture Organisation of the United Nations
IAEA	International Atomic Energy Agency
IBRD	International Bank for Reconstruction and Development
ICTU	International Confederation of Free Trade Unions
IDA	International Development Association
IFC	International Finance Corporation
ILO	International Labour Organisation
IMF	International Monetary Fund
OECD	Organisation for Economic Co-operation and Development
OPEX	Operational executive and administrative personnel
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNESCO	United Nations Educational Scientific and Cultural Organisation
UNIDO	United Nations Industrial Development Organisation
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WFP	World Food Programme
WHO	World Health Organisation



SURVEYS, ANALYTICAL STUDIES AND STATISTICAL DATA
OF A GENERAL CHARACTER

A. General Surveys of the Process of Industrialization, Major Trends and Current Developments

I.A.1 ECE project: From 1949 to 1960. Economic Survey of Europe; from 1961 onwards. Economic Survey of Europe, Part I

Authority: Terms of reference of the Commission; relevant resolutions and decisions of the Economic and Social Council and Economic Commission for Europe.

Description: This publication reviews current economic developments, including industrial development, in both eastern and western European countries. Of particular interest is the 1963 survey, which contains a chapter on southern European countries, and an evaluation of the progress made in the industrialization of the region.

Duration: Initiated in 1948; this is a continuing activity.

Estimated cost and source of funds: \$100,000; publication funds of ECE.

I.A.2 ECE project: Economic Bulletin for Europe, Vol. 11, No.2 and Vols. 12-17, No.1

Authority: Terms of reference of the Commission; relevant resolutions and decisions of the Economic and Social Council and of the Economic Commission for Europe.

Description: One issue of the Bulletin a year is devoted to a review of current developments in trade among European countries as well as in trade between Europe and the rest of the world. It also contains information on the trade in manufactured products.

Duration: Continuing activity; the first issue of the Bulletin devoted to trade appeared in 1959.

- I.A.3** **ECE project:** Note on Structural Change in the Post-War European Economy
- Authority:** Terms of reference of the Commission; relevant resolutions and decisions of the Economic and Social Council and of the Economic Commission for Europe.
- Description:** This study deals with the economic development of Europe as a whole for the period 1950-1964, and also includes a country-by-country comparison. The course of development of the region and of the individual countries is shown by an empirical examination of the levels of production and consumption of a vast number of goods and services. An important element in this investigation is the study of the changes in the industrial structure over the period.
- Duration:** Tentative plans are to publish the study in a future issue of the Economic Bulletin for Europe. Study was initiated in 1965 and it is expected to be completed in the course of 1967.
-
- I.A.4** **ECE project:** Investment in the Soviet Union and eastern Europe 1950-1964/65
- Authority:** Terms of reference of the Commission; relevant resolutions and decisions of the Economic and Social Council and of the Economic Commission for Europe.
- Description:** This study provides a summary review and analysis of the development of investment and output in the Soviet Union and the six eastern European countries in the years following their post-war reconstruction. The sections of particular relevance to industrial development are those describing the intersectoral as well as the interindustrial branch distribution of investment, those giving a sectoral analysis of past trends in capital/output, labour/output and capital/labour output ratios, and that dealing with returns to industrial investments in the individual countries from 1960-1964.
- Duration:** The study is being published in the Economic Bulletin for Europe, Vol.18, No.1. The study was initiated in 1965 and completed in November 1966.

I.A.5

ECE project: Some Factors in Economic Growth in Europe during the 1950's. Economic Survey of Europe in 1961. Part II

Authority:

Terms of reference of the Commission; relevant resolutions and decisions of the Economic and Social Council and of the Economic Commission for Europe.

Description:

This study was to contribute to the understanding of the factors tending to promote or hamper economic growth through a comparative analysis of relevant data in industrial European countries during the 1950's. Chapter III focuses on the relationships between capital and labour inputs and growth of output in individual sections, such as manufacturing and construction, mining and public utilities, while chapter V concentrates specifically on the impact of technical progress, quality of labour force and education as factors of economic growth.

Duration:

Initiated in 1959; published in 1964.

I.A.6

ECAFE project: Surveys of Mineral Resources

Authority:

ECAFE work programme.

Description:

The project is designed to render assistance to the Governments of the region, on request, in undertaking or organizing mineral resources surveys. In 1965, a survey mission consisting of four specialists went to Burma at the Government's request. Similar work has been done for the Republic of Korea. Other surveys will be undertaken when requested.

Duration:

Field operations in Burma started in January 1965; in the Republic of Korea in August 1966. Both projects will be continued into 1967.

Source of funds:

ECAFE regular budget and technical assistance funds.

I.A.7

ECAFE project: Survey of Energy Resources

Authority:

Sub-Committee on Electric Power, Commission and Committee on Industry and Natural Resources.

Description:

The project comprised a survey of the energy resources of the countries of the region and the drawing up of a regional energy balance-sheet.

The secretariat undertook a detailed study on the methodology of systematic and comprehensive energy surveys and prepared a document intended to provide guidance in the detailed procedure for undertaking energy studies. The Sub-Committee on Electric Power, at the tenth session in Manila, considered that this document would be of practical value to the countries of the region in carrying out energy surveys, and suggested that it be printed and circulated widely.

Further action will be required to provide assistance to the countries in undertaking their surveys, and for collecting and compiling regional basic data.

The survey is related to all the programmes in power and energy development in the region as well as to the activities of the IAEA in connexion with the nuclear power development project.

Duration:

Tentatively, three years.

Estimated cost and source of funds:

The cooperation of the UNDP or the regular programme of technical assistance may be required by the countries, through each country's programme, and by the secretariat in providing services of experts.

I.A.8

ECA project: Economic Surveys of Africa

In addition to the major study entitled Economic Survey of Africa, 1950-1963, to be produced in four volumes for the four sub-regions (see I.C.6), ECA proposes, beginning this year, to publish annual economic surveys. The first will largely cover the year 1966 and will deal, inter alia, with industry in Africa.

I.A.9

ECAFE project: Committee for Co-ordination of Joint Prospecting for Mineral Resources in Asian Off-shore Area

Authority:

ECAFE work programme.

Description:

Meetings of the Committee to promote, by joint efforts, the prospecting of the Asian off-shore marine shelves for mineral resources including hydrocarbons. A plan was drawn up to co-ordinate the national plans of China, Japan, the Philippines, and the Republic of Korea for prospecting in their off-shore marine shelves. A project for training technical staff is under way. UNDP assistance has been requested for this undertaking. Two meetings of the above Governments were held in 1966; the report of the first meeting has been published and that of the second meeting is being printed.

Duration:

Initiated in February 1965; the first meeting of the Committee was held in May-June 1966. This is a continuing project.

Source of funds:

ECAFE regular budget, UNDP and governmental funds.

I.A.10

ECAFE project: Working Party on Small-scale Industries (Eighth Session)

Authority:

Committee on Industry and Natural Resources (eighteenth session).

Description:

The project covers the development of small industries in the geographic area falling within the purview of ECAFE. Documentation for the meeting was prepared mainly by staff members while two papers were prepared by two consultants in their home country. Recommendations made in the report of the Working Party on Small-scale Industries (eighth session) are implemented by member and associate member countries. However, the secretariat implements the programme of work and priorities appended to the report.

Small-scale industries have made remarkable progress during recent years in almost all countries of the region and contribute in no small measure to the general industrial development of the countries.

This subordinate organ of the Committee on Industry and Natural Resources met in Manila from 3 to 9 June 1966 to review the progress and problems of small-scale industries in the ECAFE region particularly in reference to (a) government policies and programmes for the promotion and development of small industries; (b) the establishment of central development agencies for implementation of action programmes, and (c) the establishment of services and facilities for small-industry development. It also discussed, among other things, the development and training of personnel in the field of small industries with special reference to training of instructors, trainers and practising managers for increasing productivity, as well as regional co-operation for the development and training of personnel.

Duration: January-June 1966.

Estimated cost and source of funds: Regular ECAFE budget.

I.A.11 ECAFE project: Committee on Industry and Natural Resources (Eighteenth Session)

The Committee met in Bangkok from 4 to 14 February 1966. It took note of the recommendations made by the First Asian Conference on Industrialization, Manila, 6-20 December 1965, particularly of the two resolutions adopted by it. It generally supported the proposal that the Asian Conference on Industrialization be established as a permanent body and that an Asian Industrial Development Council be established.

I.A.12 ECAFE project: Working Party of Senior Geologists and the Sub-Committee on Mineral Resources Development

Authority: ECAFE work programme.

Description: The purpose of the project is to promote geological survey activities and development of mineral resources in the ECAFE region.

The Working Party and the Sub-Committee review, discussed and made recommendations on: geological survey and related activities; preparation of regional maps; stratigraphic correlation between sedimentary basins of the ECAFE region; various categories of reserves, surveying and prospecting methods and techniques; engineering geology; geothermal energy resources; training facilities; mining developments, including new drilling equipment and techniques; development of petroleum and natural gas resources, and selected mineral commodities.

Background papers for discussion at the above meetings were prepared by the ECAFE secretariat.

Duration:

Initiated in 1953; the sixth sessions of these bodies were held in 1966. This is a continuing project.

Source of funds:

ECAFE regular budget and technical assistance funds.

I.A.13

ECAFE project: Asian Industrial Development Council

Authority:

The Asian Conference on Industrialization recommended that ECAFE be requested to establish a special body to be known as the Asian Industrial Development Council. The Economic Commission for Asia and the Far East, at its twenty-second session, adopted resolution 68 (XXII) to establish the Council.

Description:

The purpose and scope of the Council are:

- (a) To keep under continuous review industrial development plans, programmes and policies adopted in the regional member and associate member countries with a view to achieving progressive harmonization of industrial development plans;
- (b) To identify, in collaboration with the countries concerned, projects for which the co-operation of two or more countries would be of mutual benefit, and to recommend ways of investigating and implementing such mutually beneficial projects;

- (c) To assist, at the request of the countries concerned, in the preparation of industrial feasibility studies and other programmes for the investigation and implementation of projects;
- (d) On request, to assist with and advise on the procurement and use of financial and technical assistance for the implementation of projects, including preparation of applications for loans from multilateral, regional and other sources;
- (e) To co-ordinate, evaluate and suggest to the member countries, UNIDO, UNCTAD, the UNDP etc. follow-up action in regard to the findings of the various panels and boards on industries to be established, including suggestions for the establishment of pilot and experimental plants, research and training centres;
- (f) On request, to help to co-ordinate, to the best regional advantage, assistance to regional member and associate member countries from international and other bodies and co-operating countries;
- (g) To render such other assistance within its terms of reference as may be requested by member and associate member countries of the region in connexion with the implementation of their industrial development plans and programmes;
- (h) To stimulate, within its terms of reference, action by appropriate governmental and private agencies leading to the establishment of suitable industries;
- (i) To bring to the notice of future meetings of the Asian Conference on Industrialization such matters as it considers appropriate.

The Asian Industrial Development Council has an essentially "action-oriented" character; its purpose is to achieve industrial harmonization in the region and identify joint industrial projects for which the co-operation of two or more countries would be of mutual benefit, as in the pooling of markets to achieve economies of scale, international division of labour and fuller utilization of raw and other materials and resources.

At its first session the Council considered eleven joint projects which could be processed and requested the secretariat to initiate early action for beginning studies in respect of them. The Council will have an Advisory Group of nine members, to be chosen for their expertise in economic development in the industrial field, whose work will be, primarily, preliminary economic analysis. The Group will advise on all matters within its competence referred to it by the Council, including the carrying out of feasibility studies concerned with projects on which there is broad initial agreement among the Governments, and also feasibility studies in respect of national schemes for which there are requests from member Governments. The Chairman of the Council may, at the request of the Governments of member countries and in consultation with the Executive Secretary, appoint Ad Hoc action groups of experts to assist in the implementation of specific industrial projects.

Duration:

The first session of the Council was held from 2 to 7 September 1966; its work is of a continuing nature.

Estimated cost and source of funds:

\$191,700 voted by the General Assembly for the year 1967.

I.A.14

ECAFE project: Sub-Committee on Electric Power

Authority:

Committee on Industry and Natural Resources.

Description:

The Sub-Committee holds meetings on the development of electric power and related matters in the member countries of ECAFE. Specialized agencies such as the IAEA, FAO, the ILO, UNESCO, etc. may participate in the meetings. The secretariat organizes and services its sessions. The tenth session of the Sub-Committee was held in Manila in September 1966. Among the main items of the agenda were the problems of energy resources surveys, application of nuclear energy for power general and desalination of sea water, and rural electrification.

Duration:

Sessions are tentatively scheduled to be held every other year.

Estimated cost and source of funds:

Regular budget of ECAFE.

I.A.15

ECAFE project: Seminar on Man-made Fibre Industry

The Seminar, one of a series on specific industries being organized annually by the ECAFE, was held in Tokyo from 28 October to 7 November 1966, at which measures were considered at both the national and international level to promote the speedy development of the man-made fibre industry.

I.A.16

ECAFE project: Consultative Group for Promoting Co-ordinated Industrial Research in Asia and the Far East

Authority:

Committee on Industry and Natural Resources at its eighteenth session. This project was first recommended by the Asian Conference on Industrialization and endorsed by the Commission at its twenty-second session.

Description:

The Consultative Group was convened in Bangkok from 1 to 8 December 1966 to consider, among other items, the establishment of an Asian Industrial Research Council. It also discussed co-operation in and co-ordination of industrial research programmes, which could be a useful means of ensuring that optimal use was made of scarce resources for the accelerating of economic development.

The Consultative Group consisted of individuals of appropriate background and sufficient experience who could generally consider and advise on the most rewarding lines of action to be pursued to promote regional co-operation and co-ordination in industrial research programmes and, more specifically, to advise on the steps to be taken to establish, as has been recommended by the Asian Conference on Industrialization, an Asian Council for Industrial Research and Technology.

The meeting dealt with the following aspects of industrial research:

- (a) The present status and development of industrial research institutes in countries of the ECAFE region, with particular reference to application of results of research to economic development;
- (b) Staffing of industrial research institutes and training of personnel for industrial research;

- (c) Co-operation and co-ordination of industrial research institutes on exchange of information and sharing of experience in carrying out research programmes;
- (d) The functions, terms of reference, procedure, composition and organization of the proposed Asian Council for Industrial Research and Technology.

Documentation was prepared by a staff member and one consultant engaged for six weeks. The recommendations made in the report of the Consultative Group will be carried out by the secretariat and the member and associate member countries.

Duration:

Funds for the meeting were requested in June 1966 and preparation of the agenda and documentation began in September 1966. The meeting ended on 8 December 1966.

Estimated cost and source of funds:

The estimated cost of the project is \$9,800; the funds were provided from the regular programme of technical assistance.

I.A.17

ECAFE project: Working Group on the Development of Standards Institutions in the ECAFE Region

Authority:

Asian Conference on Industrialization, Committee on Industry and Natural Resources and the Commission.

Description:

A Working Group to discuss the development of standardization in all the countries of the region. Its work is related to all fields of industry, and to international organizations on standardization.

The Group held an ad hoc meeting in Bangkok from 12 to 19 December 1966. It reviewed the present status of standardization in the countries of the ECAFE region and recommended measures designed to promote the development of standards at both the national and regional levels. It also recommended the establishment of an Asian Standards Committee.

Duration:

The meeting was completed in 1966.

Estimated cost and source of funds:

\$8,600 provided from technical assistance funds.

B. Statistical Series on an Internationally Comparative Basis: Industrial Census Data and Techniques: Methodological problems related to the Collection, Processing and Publication of Industrial Statistics

I.B.1

ILO project. The ILO programme in the field of statistics takes into account the need for promotion of statistical developments in the newly industrializing countries. Adequate statistical data are an essential requirement for purposes of efficient policy formulation and programme planning and evaluation. Statistics on subjects relevant to industrial development with which the ILO is particularly concerned relate to:

- (a) Human resources - population and labour force trends, employment, unemployment and under-employment;
- (b) Wages;
- (c) Consumer prices and levels of living (family budgets);
- (d) Working conditions - hours of work, employment injuries, industrial disputes, social security, and
- (e) Productivity.

Current statistics on these subjects are published annually in the Year Book of Labour Statistics and in the Quarterly Bulletin of Labour Statistics. Every three years, a special statistical publication on the cost of social security is also published (The Cost of Social Security).

I.B.2

ILO project. Draft proposals for the revision of the International Standard Classification of Occupations, referred to in the last Consolidated Report (E/C.5/125/Add.1, page 13, I.B.9) were submitted to the 11th International Conference on Labour Statisticians (October 1966), which adopted a revised classification. The International Classification, first issued in 1958, has given a strong impetus to the development of statistics of occupations which provide basic information needed for planning the manpower aspects of industrialization programmes.

I.B.3 ILO project. International standards for statistics of labour cost per hour worked were adopted by the 11th Conference of Labour Statisticians in October 1966. So far, statistics of labour cost exist only in a few countries and they are practically non-existent in the newly industrializing countries.

I.B.4 ILO project. The Eleventh International Conference of Labour Statisticians also adopted revised international recommendations concerning concepts and methods of measurement of under-employment. Statistics on this subject are of particular interest to industrializing countries because they help to measure the impact of industrial and other economic development projects on the employment situation.

I.B.5 ILO project. The ILO is preparing a study on statistics of labour productivity, including the particular problems which arise in compiling such statistics. In connexion with economic development planning, assessment of labour productivity levels and likely future trends is of fundamental importance. The results of the study will be published and will include a comparative analysis of the national statistical series and a part dealing with the methodology of measurement of labour productivity. Research will be undertaken subsequently on the subject of international comparisons of labour productivity. A meeting on the subject is to be convened in 1968 by the Economic Commission for Europe, in collaboration with the ILO.

I.B.6 ECE project: Review of International Standards Relating to Index Numbers of Industrial Production and Adoption of a Revised and Extended Set of Recommendations in this Field

Authority: Conference of European Statisticians, 1964.

Description: This provides an up-to-date framework for the improvement and standardisation of the indexes compiled by both countries with market economies and those with centrally planned economies.

Duration: Project initiated in 1964; work still in progress.

I.B.7

ECA project: Statistical Bulletin for Africa

The Statistical Bulletin for Africa, published annually, contains technical articles on statistical methodology and on industrial statistics in Africa.

I.B.8

ECA project: Statistical Bibliography

ECA has compiled an up-to-date bibliography of statistical publications in African countries.

I.B.9

ECA project: Industrial Production Statistics

ECA has completed a compilation of industrial production statistics for all countries in Africa for the period 1950 to 1965.

I.B.10

ECF project: Adoption of a European Programme of Basic Industrial Statistics

Authority:

Conference of European Statisticians, 1961.

Description:

To provide a regional variant of the corresponding world programme drawn up by the Statistical Commission.

The programme consists of an agreed set of statistics to be compiled for establishment-type statistical units, and contains a supplementary set of recommendations relating to statistics to be translated for enterprise-type units.

Duration:

The programme was initiated in 1963.

I.B.11

ECAPF project: Electricity Statistics

Authority:

Sub-Committee on Electric Power, Committee on Industry and Natural Resources and the Commission.

Description:

The project is designed to provide a systematic compilation of regional statistics in the field of electric power. It is related to projects on surveys of energy resources and planning of electric power development and covers electricity supply undertakings of countries in the ECAPF region.

An ad hoc Working Party on Electricity Statistics met in Bangkok in October 1963 and prepared a comprehensive set of proformas for collection and compilation of electricity statistics in the ECAFE region. In doing this, the need for comparability of the data with those published in the developed countries was kept in mind. The recommendations of the Working Party were endorsed by the Sub-Committee on Electric Power at its ninth session, and the secretariat has adopted these revised proformas for collection of electricity statistics.

Duration: Ad Hoc meeting completed in 1963. Compilation of statistics will continue.

Estimated cost and source of funds: Regular budget of ECAFE.

I.B.12 ECE project: Working Group on the Improvement of Industrial Statistics

Authority: Conference of European Statisticians.

Description: This group is to prepare recommendations covering the scope, coverage and content of annual and more frequent industrial enquiries.

Duration: Group will be convened in 1967/68.

I.B.13 ECE project: Working Group on the Development of International Standards of Labour Productivity

Authority: Conference of European Statisticians, in co-operation with the ILO.

Description: This work includes the formulation of recommendations to improve and standardise indexes of labour productivity in industry, and a study of the methodology of international comparisons of levels of labour productivity in industry. Under the aegis of the Conference, Czechoslovakia and France have undertaken a joint study of comparative productivity levels in the two countries.

Duration: First working group met in 1964 and a further meeting is planned for 1967/68.

I.B.14 ECA project: Working Group on Industrial Promotion Statistics

The Working Group met in Addis Ababa from 12 to 17 December 1966 to study ways and means by which industrial production statistics could be improved and standardised.

C. Analytical Studies of Basic Problems and Issues, such as Relationship between Industrial Development and Development in other Sectors; Studies on Industrial Specialization, Economies of Scale, Factor Proportions, etc.

I.C.1

ILO project. As part of ILO's programme of research into problems of promoting balanced economic and social development, a study was prepared on the distribution of gains from economic development and published in the International Labour Review of May 1965. The study examined how twenty-one developing countries distributed the increases in national income over a period of six to eleven years from the 1950's to the early 1960's between four basic end uses: the part of the increase spent on maintaining the level of per capita consumption, government services and investment. This empirical analysis, together with its findings on the share of the investment component, gives some insights into the problem of availability of resources for industrial development in developing countries.

I.C.2

ILO project. In the January 1965 issue of the International Labour Review, ILO published a study on the problems of improving the productivity of public works carried out on a labour-intensive basis for building up the infrastructure essential to industrial and agricultural development with particular reference to African countries. The study appended a summary of the conclusions reached by an ILO Technical Meeting on Productivity and Employment in Public Works in African countries held at Lagos in December 1963 and two case studies of manual earth-moving conducted by ILO missions, one in India and the other in Nigeria and Tanzania.

I.C.3

ILO project. In 1966 a revised version was completed of the study on the fixing of employment targets in development plans, which was mentioned in the last Consolidated Report (E/C.5/125/Add.1, page 14). The revised version includes, inter alia an analysis of the various approaches to fixing employment targets, by sectors and in aggregate, attempted in the formulation of the development plans under review.

I.C.4

ILO project. In 1965 a start was made with a comparative analysis of employment problems and policies in developing countries pursuant to the resolution concerning ILO action in the field of employment policy adopted by the International Labour Conference at its 48th (1964) session. The objectives are to develop the empirical and conceptual basis needed for planning ILO action to expand productive employment in developing countries with surplus labour. One of the important problems to be studied under this project concerns the employment-creating effects - direct and indirect, short-term and longer-term - of industrial development in developing countries, especially those faced with a rapid growth of the labour force. The project proceeds in two stages. The first stage consists in the preparation of a number of case studies of selected countries in Asia, Africa and Latin America. Preliminary exploratory studies are under way on Algeria, Colombia, Guatemala, India, Jamaica, Malagasy Republic, Morocco, Peru, Philippines, Senegal, Tanzania, Tunisia and the United Arab Republic. The results of the studies on Morocco and Tunisia were published in an article entitled "Manpower Mobilization and Economic Growth: an Assessment of Moroccan and Tunisian Experience" in the International Labour Review of July 1966. In the second stage a comparative analysis will be made of the problems of and measures for employment promotion in the over-all context of economic development and industrialization in different under-developed regions of the world. The analysis would cover the main policy suggestions in the Recommendation on Employment Policy adopted by the International Labour Conference at its 48th (1964) session. The project is expected to be completed in 1967 or 1968.

I.C.5

ILO project. In 1966 the ILO completed a report for OECD, which undertook an analysis and evaluation of the role of public works in full employment and economic growth policy. The ILO is continuing its studies of the role of housing in economic growth.

I.C.6

ECA project: Analytical studies

ECA has published Volume I of Economic Survey of Africa, which deals with development of the various sectors of the economy, including industry during the period 1950-1963. It contains an analysis of the current development plans of the countries of the West African sub-region and of the Republic of South Africa.

A similar study for the same period in the countries of North Africa has been completed and is in course of publication as Volume II. The series will be completed by Volume III for Central Africa and Volume IV for the East African subregion.

I.S.7

ECAFE project: Electric Power Development

Authority:

Sub-Committee on Electric Power, Committee on Industry and Natural Resources, and the Commission.

Description:

The purpose of the project is to develop the electric power supply industry in the countries of the region in connexion with the national plans for industrial development. A meeting on the Role and Application of Electric Power in the Industrialization of Asia and the Far East was held in July 1965. It made a detailed study of the technical and economic aspects of electric power development in the ECAFE region and offered a series of practical recommendations addressed to the countries of the region as well as to the international agencies. The ECAFE secretariat undertook detailed studies and as a result issued a publication, Public Electricity Supply - A Manual on Management. A companion-volume dealing with a uniform system of accounting for the electricity supply industry is expected to be published in 1967.

The ECAFE secretariat issues on an annual basis Electric Power in Asia and the Far East, which contains basic statistical data on the development and working of the electric power supply industry in the region. The publication also contains a descriptive review of the progress of the power supply industry in the region, bringing out the salient features of the industry in the various countries.

Duration:

A continuing project. The publication Electric Power in Asia and the Far East will be issued every year.

Estimated cost and source of funds:

The ad hoc meeting on the Role and Application of Electric Power in the Industrialization of Asia and the Far East was held in co-operation with IFAO.

I.C.8

BSA/CID project: Technical Assistance to Ireland in connexion with the National Institute for Physical Planning and Building Construction

Authority:

UNDP (Special Fund).

Description:

Regional studies to identify growth points for industrial development in Ireland. A full range of social, demographic, economic, transportation and land use studies based on the economic development plan for the country. The work product is to be a report which will not only identify areas but also go into cost alternatives, policy proposals for industrial development.

The project was initiated by the Government of Ireland in consultation with the United Nations. It is to be carried out under contract by a British firm of physical planners.

Forms part of project to assist activities of the Institute (planning, building research, road planning).

Duration:

To be completed early in 1968.

Estimated cost and source of funds:

\$130,000. UNDP/Government of Ireland.

D. Periodic Publication, if not related to Specific Branches of Industry

I.D.1

ECAFE project. ECAFE publishes an annual review of mining developments in Asia and the Far East, and the preparation of a review of the twenty-year period from 1946 to 1965 is nearing completion. It has also published the proceedings of the first two symposia on the development of petroleum resources in the ECAFE region, and the proceedings of the third symposium are being prepared for publication. The proceedings of the seminar on development and utilisation of natural gas resources in the ECAFE region were published and distributed in 1966. Studies on bauxite and tin ore resources of the region have also been published in recent years, in addition to studies on several other mineral commodities published in earlier years. To date, twenty-five publications have been issued in the Mineral Resources Development Series as have been regional maps covering the geology, oil and natural gas development and mineral distribution in the ECAFE region. A regional tectonic map and a metallogenic map are in course of preparation.

The secretariat undertakes on a continuing basis, studies on questions related to industries, which culminate in publications such as ECAFE Mining Review, Small Industry Bulletin, Industrial News, Rural Electrification in Asia and the Far East etc. It expects to issue early in 1967 two new publications Comprehensive Energy Surveys - An Outline of Procedure and Public Electricity Supply - A Manual on Uniform System of Accounting.

I.D.2

ECA project: Economic Bulletin for Africa

ECA publishes the Economic Bulletin for Africa on an annual basis but commencing 1966 this Bulletin will be published twice a year. Volume 6, No.1 contains reviews of development plans in twenty-six countries of Africa.

Chapter II

A. Policies for the Regulation and Control of Industry

II.A.1 CID project: Policies and Plans of Developing Countries regarding the Role of the Public Sector in Manufacturing

Authority: Economic and Social Council resolution 1030 A (XXVII).

Description: Study to assess the importance of the public sector in manufacturing.

The study covers the scope and structure of the public sector in manufacturing in selected developing countries as well as policies and plans relating to this sector. If sufficient resources are available, it is intended to follow up with a seminar on financial aspects of industrial public enterprises, to be held in 1968.

Duration: Initiated October 1965; to be completed February 1966.

II.A.2 CID project: Industrial Development Survey

Authority: Economic and Social Council resolution 1030 (XXVII).

Description: A survey to provide a review and assessment of developments which may be significant for the industrialization programmes of the developing countries and to review the over-all progress achieved in the field. It is designed to be an aid to policy discussion regarding basic issues of industrial development.

Whereas the bulk of research projects of concern to the Centre relate to specific areas, the Survey seeks to complement this work by providing a general picture of the problems of industrialization in developing countries so that perspective is given to the more specific studies.

The Survey is to focus on the industrialization problems of the developing regions. It is to review developments in major sectors of manufacturing particularly as regards availability of primary resources, influences of foreign trade, choices of technology and requirements and availabilities of manpower and skills and of finance.

The Survey is to be produced primarily by the Survey Section with some assistance from consultants.

Duration: Started early in 1966; first issue to be completed by end-March 1967.

Estimated cost and source of funds: It is estimated that the preparation of the first issue of the Survey will absorb some 75 man-months. The authorized allocation to the Survey Section from the budget of the International Symposium on Industrial Development is \$25,000.

II.A.3 ECAFE project:

Issues relating to the formulation and implementation of governmental policies in regard to industrial development have been dealt with in considerable detail by the first Asian Conference on Industrialization. During 1966, the secretariat was largely engaged in the preparatory work in connexion with the meeting of the Asian Industrial Development Council and in the follow-up action implementing its directives.

Much of the effort of the Economic Commission for Asia and the Far East in recent years has been directed towards promoting regional co-operation, particularly in the field of industrial development. The first Asian Conference on Industrialization devoted very considerable attention to this question and the establishment of the Asian Industrial Development Council (AIDC) is the outcome of the realization of the importance and usefulness of joint and co-operative effort among the countries of the region in industrial development.

While the AIDC recognized the national aspiration of each country to develop itself industrially in as rapid and diverse a manner as possible, it considered that it would be in the economic interests of the member countries to introduce an element of regional harmonization into their industrial development plans. The spirit of national self-help and initiative supplemented by regional or subregional co-operation would result

in accelerated development of all the participating countries. Such co-operation (and harmonization of industrial development plans) is especially necessary in the ECAFE region in view of the great diversity among the countries in respect of size, population, resources, development, history, culture and political background.

Harmonization of industrial development plans and co-operation among the countries on a regional or subregional basis can take many forms such as the establishment of joint institutions for training and research, of joint industrial enterprises, of programmes for development of areas or groups of countries etc. In this context, it is important that decisions be taken on strictly pragmatic considerations and not on vague sentiment or ideology. An effective plan harmonization programme may in the first instance be organized.

II.A.4 ECE project: Policies and Means of Promoting Technical Progress as a Major Factor of Economic Growth: Fifth Meeting of the Senior Economic Advisers

Authority: Resolutions 3 (XV), 11 (XVI), 11 (XIX) and 11 (XX) of the Economic Commission for Europe.

Description: To consider technical progress as a factor of economic growth with special reference to evaluation and policy formation.

Duration: Preparatory Group convenes in November 1966, the actual meeting taking place in the fall of 1967.

B. Industrial Protection and Incentive Policies

II.B.1 CID project: Fiscal Incentives for Industrial Development

Authority: Economic and Social Council resolution 1030 A (XXVII).

Description: A comparative study on industrial fiscal incentives, based in part on commissioned country papers. The study will cover country experiences in the design of fiscal incentive schemes with an appraisal of their effectiveness in operation, and suggestions for measures to improve their efficiency. A group of experts will meet in May 1967 to examine these suggestions and to make appropriate recommendations.

The purpose of the study is to assist Governments in the design, operation and appraisal of industrial fiscal incentive schemes. It will also be presented to the World Symposium on Industrial Development.

It will be carried out by the Secretariat with the assistance of consultants and a group of experts.

Duration: Initiated in June 1965; the comparative study and the country studies will be completed in January 1967.

Estimated cost and source of funds: Consultants, \$13,500; meeting of group of experts, \$4,000 (in 1967).

II.B.2 Fiscal and Financial Branch project: Promotion of Private Foreign Investment in Developing Countries

Authority: General Assembly resolution 1087 (XX); recommendation A.IV.12 of the United Nations Conference on Trade and Development.

Description: A study covering findings and recommendations regarding relevant financial methods and institutions and economic, legal and administrative policies and measures for promoting the flow of private capital and technological and managerial know-how to developing countries.

The study will deal with the major aspects of private foreign investment in developing countries, presenting a comprehensive review and analysis under the following headings:

- (a) Financial policies and institutions for the mobilization and channelling of foreign private capital for investment in developing countries;
- (b) Measures in developing and countries for the promotion, taxation and regulation of foreign private investments in developing countries (including protection and incentive measures);
- (c) The role of foreign enterprises in the transfer of technical and managerial know-how.

The report will be based on the information collected in the Branch and on consultations with officials of national and international organizations and will draw on a series of five studies ("The Promotion of the International Flow of Private Capital" (E/3325, E/3492, E/3905 and E/4038)) prepared by the Fiscal and Financial Branch since 1960.

Duration:

To be completed at the end of 1966. The study will be put before the first session of the Industrial Development Board.

II.B.3

Fiscal and Financial Branch project: Interregional Seminar on Development Financing: Promotion of Private Foreign Investment

Description:

The Fiscal and Financial Branch plans to convene in 1967 a meeting of experts to review and exchange views and experience on the role of foreign private investment in the launching and operation of development projects. The documentation for this seminar will be based on the above-mentioned report (see II.B.2). It is also expected that participating international and national agencies and experts will contribute studies and information related to their own policies and activities.

C. Industrial Location Policies

II.C.1 ECE project: Criteria for Location of Industrial Plants
(Changes and Problems)

Authority: Commission resolution 7 (XVIII).

Description: The study was prepared for submission to the twenty-second session of the Economic Commission for Europe and to the International Symposium on Industrial Development, 1967.

The study covers the historical evolution of different locational factors and the emergence of macro-economic factors; locational implications of significant changes in industrial techniques and economics; analysis of three basic regional policies and their implications for industrial location; sectoral versus regional approaches in the national economy; the importance of industrial locational policy for international integration, and finally an examination of the industrialised countries' experience and its applicability for the developing countries.

Duration: Initiated in 1965; completed in 1966.

II.C.2 OIE project: Studies for the Interregional Seminar on Location
of Industry and Regional Development

Authority: Economic and Social Council resolution 1030 A (XXVII).

Description: A comparative study being prepared for the Interregional Seminar on Location of Industry and Regional Development and for the International Symposium on Industrial Development, based in part on commissioned country papers. Both the comparative study and the country papers discuss the problems faced by policy makers in the location of industry and the policy measures to bring about a desirable pattern of industrial location and regional development.

Duration: Initiated in January 1966; studies to be completed by March 1967.

Estimated cost and source of funds: Studies, \$10,000; Seminar \$83,000 (1967)

II.C.3

BSA/CID Project: Technical Assistance to Ireland in
connection with the National Institute for
Physical Planning and Building Construction

See project No. I.C.8.

D. Policies of Regional Co-operation

II.D.1 ECE project: "Incomes in Post-War Europe. A Study of Policies, Growth and Distribution", Economic Survey of Europe in 1965, Part II.

Authority: Terms of reference of the Commission; relevant resolutions of the Economic and Social Council and of the Economic Commission for Europe.

Description: This study includes an analysis of the development of incomes distribution among occupations and industries and of the organization of wage settlements not only in the highly industrialized countries but also in the industrializing countries of Europe. It covers income changes in both the market economies and the centrally planned economies, and will seek to show how far actual developments have been influenced by government policies. In addition, the study deals with the relations between planning of structural growth and income distribution.

Duration: The study was initiated in 1965 and completed by the end of 1966. It will be published in the course of 1967.

II.D.2 ECA project: "Industrial Co-ordination in East Africa - A Quantified Approach to First Approximations"

Description: The interindustry balance study for East Africa (E/CN.14/INR/102) has, on the basis of additional information gathered since the Meeting on Economic Co-operation in East Africa held in November 1964, been further revised and expanded during 1966 under the new title East Africa - Study of the Ten-Year Industrial Development Programme, 1965-1975 (Revised Summary of Proposals for Industrial Co-ordination in East Africa.

The balancing of industrial opportunities in that study was based on the expanded demand in 1975 compared with the base year 1963, export improvement, the product-mix in demand, minimum cost considerations, the potential in natural resources and, where these are scarce, by the placement of footloose industries. The study quantifies the dimensions it deals with: grow output, value added, foreign exchange savings, employment etc. and above all the criss-cross of interindustry transactions in the products of industry that the enlarged scale of industrial effort will call for.

II.D.3 ECA project: Industrial Development in West Africa: an Integrated Analysis

Description: A similar study of interindustry balance (E/CN.14/INR/141) assumed subregional co-operation and economic integration as necessary conditions, fixed the rates of growth and tentatively allocated on an equitable basis the distribution of industries. For the immediate future a more detailed analysis is planned, based principally on the application of econometric techniques to the data on intra-subregional trade and interindustry relationships. The input-output matrix is being used to test the feasibility of the projected programme of economic development and the assumptions made with respect to investment, exports and imports and a linear programming model is being developed to analyse the economic relationship within the sub-region.

Duration: To be completed early in 1967. S.C.11

II.D.4 ECA project: Study on Interindustry Balance for North and Central Africa

Description: A study of interindustry balance and plans of industrial development is being prepared for the North African and Central African subregions, based on pre-feasibility studies for a wide range of industries in those regions.

Duration: To be completed in 1967.

II.D.5 ECA project: Subregional Meeting on Economic Co-operation in Central Africa

Description: The subregional meeting held at Brazzaville (18-23 April 1966) and attended by representatives of all the six countries of the subregion and of Rwanda and Burundi considered the revised and enlarged single report of the ECA Mission on Economic Co-operation in Central Africa (E/CN.14/L.320) which set forth the prospects of co-ordinated development in three sectors of the economy; energy, agriculture and industry, and recommended that Heads of State and Governments set up an interministerial committee to study problems of economic co-operation between the States of the subregion.

The subject of industry in the Mission report was based on preliminary studies on a range of industries and contained tentative suggestions and recommendations on the harmonization of industrial development in the subregion, on the institutional framework for promotion of industry and on future prospects. The delegations, while affirming the policy of their Governments to encourage even closer economic co-operation, requested that further detailed studies be undertaken by ECA in individual industry sectors and presented at future meetings. The recommendations of this meeting are detailed in its report (E/CN.14/351).

Following on these conclusions pre-feasibility studies on a wide range of industries are now under preparation and an industrial harmonisation plan for Central Africa based on these studies will be undertaken in 1967.

II.D.6

ECA project: Subregional Meeting on Economic Co-operation in North Africa

Description:

This meeting held at Tangier 20-24 June 1966 and attended by representatives of Algeria, Libya, Morocco, Tunisia and the United Arab Republic discussed the main problems of economic development of the subregion and the possibilities of widening subregional co-operation in certain areas of economic development. The meeting acknowledged the close co-operation that exists between the standing consultative committee of the Maghreb and its commissions, and the ECA and its Subregional Office, and the assistance given by ECA in the preparation of detailed studies on the framework of its future activities.

Following on this ECA secretariat proposed a programme of work in the field of industry to a special meeting of the heads of delegations held on 24 June 1966. The programme as accepted includes market demand studies with projections up to 1968-1969 on selected industries, e.g., food industries, textiles, chemicals, leather, pulp and paper; preparation of an inventory of food-processing industries; preparation of a prospective industrial development programme for the Maghreb countries covering the period 1966-1980, which will include an inventory of all existing industries, identification of plants producing at excess capacity, examination of additional

capacity required during the period and recommendations on sizes of plants feasible, their capacity, location, investment required and labour requirements; preparation of an industrial co-ordination plan for the North African subregion, based on the methodology already described for Maghreb countries which will also consider industrial sectors in which subregional co-operation is feasible.

ECA has also offered advisory services on request to the Governments of the subregion on the implementation of their industrial development plans and in the establishment of appropriate institutions for the execution of industrial projects.

II.D.7 ECA project: The Subregional Meeting on Economic Co-operation in West Africa

Description:

This meeting, held at Miami in October 1966, was attended by eleven of the fourteen Member States of the subregion. The meeting discussed as items on the agenda papers submitted by the secretariat on forest industries, food industries, chemical products and fertilizers, cement industry, and small-scale industries. There was general agreement that food-processing industries were among the most important in terms of employment as well as in the contribution to national welfare. Various delegations urged additional studies, either by ECA alone or by ECA in conjunction with other organizations, and offers of assistance were received from FAO, WHO, the Tropical Products Institutes and the Netherlands.

With reference to cement production, the meeting suggested that a special study might be undertaken of the process for the production of cement and sulphuric acid jointly from gypsum. It was also suggested that an institute or a co-ordinating body for the promotion of chemical industries in West Africa should be established as a subsidiary organ of a general industrial committee, the main task of which would be to ensure the concerted and harmonious development of the chemical industry in West Africa.

The paper on development of small-scale industries proposed the establishment of an advisory centre, the setting up of industrial estates and provision of hire-purchase arrangements for machinery. The meeting approved of the establishment of an advisory centre to serve the subregion and initially staffed by ECA.

A large number of pre-feasibility studies on bricks, ceramics, rubber, textiles, electronics, synthetic fibres, beverages, tobacco, bags and bagging, paint, glass, leather and shoes, non-ferrous metals, furniture, petroleum and construction were presented as a compendium of investment opportunities and this was discussed with a single summary "Industrial Development in West Africa: An Integrated Analysis" (E/CN.14/INR/141). The last-named document, a preliminary study of industrial harmonization programme and interindustry balance in West Africa, fixed the rates of growth and tentatively allocated on an equitable basis the industries required to meet the market demand by 1980. A more detailed analysis is planned, based principally on the application of econometric techniques to the data on intra-subregional trade and interindustry relationships. The input-output matrix will be used to test the feasibility of the projected programme of economic development and the assumptions made with respect to investment, exports and imports.

The delegates discussed the integrated analysis and the pre-feasibility studies presented as a compendium of investment opportunities together and recommended the creation of an industry committee under the interim council of ministers proposed for economic co-operation in West Africa. They further suggested that in the revision and expansion of the interindustry balance document special emphasis should be placed on:

- (a) The amount of phasing of investments suggested for each country and for each industry;
- (b) The manpower and training requirements for each country and for each industry.

The report of the meeting is contained in document E/CN.14/366.

II.D.8

ECA project: Meeting of the Interim Council of Ministers of Eastern Africa

Description:

The subregional Meeting on Economic Co-operation in East Africa, held in Lusaka in 1965, recommended the formal establishment of "the Economic Community of Eastern Africa under a treaty to be drawn up" and the setting up of "an Interim Council of Ministers to draw up the Treaty and to carry out measures of economic co-operation pending ratification of the Treaty". After reviewing the acceptance in writing from six countries of the subregion, the ECA convened the meeting for 2-4 May 1966, in Addis Ababa. The meeting was attended by ministerial representatives of Ethiopia, Kenya, Malawi, Mauritius, Tanzania and Zambia. Somalia, Burundi and Sudan were also represented. The meeting considered a draft terms of association and the terms as finally approved was signed by six countries.

Since the meeting three other countries have been signatories to the Articles of Association and the second meeting of the Interim Council of Ministers is due to be held early in 1967.

E. Export Policies for Industrialization

II.E.1 CID project: The Metal-Transforming Industries as Potential Export Industries

Authority: CID work programme for 1965 and Committee for Industrial Development, fifth session (E/4065, para. 26).

Description: A study to investigate the potential of the metal-transforming industries from the point of view of simultaneous import substitution and export promotion. These industries represent a major potential means of improving the balance of payments position of the developing countries. The study will be based on an exhaustive analysis of the widely dispersed empirical and analytical material on metal-transforming industries.

Two pilot studies are about to be initiated in Hungary and Israel. These are intended to help in improving the methodology and general approach of the study, and to provide practical guidelines for assistance to developing countries in the expansion of these industries for exports.

Simultaneously, a number of country studies have been undertaken with a view to providing background information for future technical assistance projects along the lines of the methodology being worked out.

The project is being carried out by the Centre for Economic Planning at the New School for Social Research in New York, under the direction of Professor Thomas Victoriss and in close active collaboration with the Centre for Industrial Development.

Duration: Initiated in mid-1966; expected date of completion, late 1967.

Estimated cost and Source of funds: \$40,000 has been allocated for the study.

II.E.2 CID project: Export Marketing Organizations

Authority: United Nations Conference on Trade and Development.

Description:

A study to analyse the role of export marketing organizations and exporters' associations in the promotion of exports of manufactures from developing countries.

This project is mainly concerned with the effect of such organizations on the rationalization of production in existing industries and their adaptation to the requirements of foreign markets. Its purpose is to devise guidelines for the effective utilization of existing industrial capacity for exports in those cases where individual producers are inhibited from entering the foreign market as a result of their small size, lack of experience and overhead facilities, and similar factors.

Case studies of such organizations have been undertaken in Chile, Iran, Israel and Yugoslavia. These studies are to provide the empirical material for a more general comparative analysis, now being prepared. The general analysis will enable guidelines to be devised for economic policies in this field and will assist Governments in setting up or promoting similar organizations, suitable for their circumstances.

Duration:

Initiated in mid-1966; expected date of completion, April 1967.

Estimated cost and source of funds:

\$5,900 has been allocated for the study.

II.E.3

CID project: A Study of Export-Propelled Growth

Authority:

Recommendations A.III.1, paragraph 3 and A.III.3 of the first United Nations Conference on Trade and Development.

Description:

One of two studies initiated between the Centre for Industrial Development and the Centre for Developing Area Studies at McGill University, Montreal. The study will analyse the pattern of industrialization in several Caribbean countries of the export-dominated, small-economy type.

It is expected that this multicountry analysis will prove useful as a model for a large number of developing countries with similar economic structure, and that it will help to devise policy guidelines for more rapid industrialization of such countries. The objective is,

in particular, to reveal the areas in which operational research needs to be carried out immediately and to establish priorities, particularly with respect to the development of export industries.

Duration: Initiated in mid-1966; expected date of completion of the present stage, mid-1967.

Estimated cost and source of funds: \$10,000 has been allocated for the study.

II.E.4 CID project: A Study on Foreign Aid and Industrialization

Authority: Recommendations A.IV.2 and A.IV.3 of the the first United Nations Conference on Trade and Development.

Description: This is the second study initiated between the Centre for Industrial Development and the Centre for Developing Area Studies at McGill University, Montreal. The purpose of the study is to analyse the impact of foreign aid in its various forms on industrialization, with a view to formulating policies for the effective use of foreign aid to promote industrialization in general, and in particular, to use it for the establishment of export industries.

In its present stage, two intensive case studies are being carried out in Pakistan and Ghana.

Duration: Initiated in mid-1966; expected date of completion, mid-1967.

Estimated cost and source of funds: \$10,000 has been allocated for the study.

II.E.5 CID project: Utilization of Industrial Excess Capacity in Developing Countries for Exports

Authority: Recommendation A.III.1 of the first United Nations Conference on Trade and Development.

Description: A study for the purpose of devising guidelines for the formulation of policies to permit the effective utilisation of industrial excess capacity for the expansion of exports to foreign markets.

The first stage in this project will consist of the preparation of a study, "Possibilities of Utilization of Industrial Excess Capacity in Developing Countries for Exports". Simultaneously with the preparation of this study, field surveys will be undertaken in a number of developing countries with the purpose of providing empirical case studies of this problem and, on the basis of the preceding analysis, working out recommendations for the necessary policies and changes in industrial organization that may promote utilization of such capacity reserves.

Lastly, a meeting will be convened of a group of experts to deal with this problem and to formulate recommendations for technical assistance in this area. This meeting is planned for the fall of 1968.

Duration: Initiated late in 1966.

II.E.6 CID project: Seminars and Training Courses for Export Promotion Personnel

Consideration will be given, jointly with UNCTAD, to the possibility of organizing appropriate seminars and training courses for export promotion personnel.

II.E.7 CID project: Alternative Techniques for Export-Oriented Industries

Authority: Recommendation A.III.1 of the first United Nations Conference on Trade and Development.

Description: An initial study of selected industries in developing countries has been undertaken with a view to determining empirically the range of alternative manufacturing techniques available, and the level of costs of production under the various alternatives.

Work has been started on an analysis of the existing empirical and analytical material, and initial steps have been taken to consult with production engineers.

It is envisaged that a meeting of experts on this problem will be held late in 1967, and five country studies will be commissioned to determine what production methods in the industries selected are at present in use in various developing countries.

Duration: The project is expected to be completed by the end of 1967.

II.E.8 ECA project: Exports from Zambia

An ECA-UNCTAD joint project has been undertaken to study the export possibilities of manufactured and semi-manufactured products from Zambia to developed areas as well as to countries in Africa.

II.E.9 UNCTAD project. Work of the Committee on Manufactures in the field of Export Policies for Industrialization

Description:

The Committee on Manufactures is concerned with export policies for industrialization. It deals with the expansion, diversification and promotion to all markets of exports of manufactures and semi-manufactures produced by the developing countries. The following five items list the major issues being examined by the Committee.

- (1) The improvement of conditions of access to the developed countries' markets for exports of manufactures and semi-manufactures from the developing countries;
- (2) Additional measures and actions to increase the export of manufactures and semi-manufactures from the developing countries to all markets;
- (3) An exhaustive study of world demand for, and supply of, semi-manufactured and manufactured articles of actual or potential export interest to the developing countries;
- (4) Studies on sectors of industry with a current or potential export interest to the developing countries, and
- (5) Export promotion and technical assistance in the developing countries.

A more detailed explanation together with the decisions taken by the Committee in respect of these items is given below:

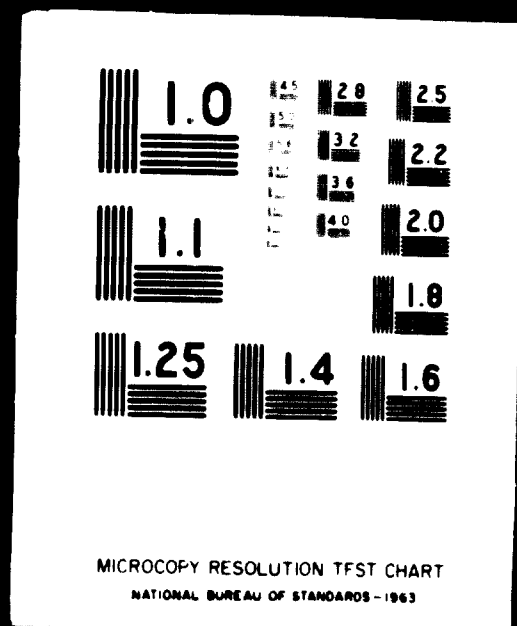


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We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche.

- (1) The improvement of conditions of access to the developed countries' markets for exports of manufactures and semi-manufactures from the developing countries

The Committee has been charged to examine and consider:

(a) The reduction and, wherever possible, the elimination of tariff and non-tariff barriers affecting exports of manufactures and semi-manufactures from the developing countries;

(b) The question of the establishment by the developed countries of a non-reciprocal system of preferences in favour of the developing countries.

In respect of tariff and non-tariff barriers, the Secretariat is undertaking three projects:

(a) A study of effects of existing tariff barriers in the developed countries on the establishment of processing industries in the developing countries;

(b) Study of the possibilities of reclassification of tariff nomenclatures to afford easier access to certain categories of manufactured articles of the developing countries, and

(c) An analysis of the effect of non-tariff barriers on existing developing countries' exports to the developed countries' markets.

The Committee examined at its first session from 10 to 20 August 1965 the report submitted by the Special Committee on Preferences appointed by the Secretary-General of the United Nations in pursuance of annex A.III.5 of the Final Act of the first United Nations Conference on Trade and Development. It recommended to the Board that a subsidiary body of the Committee be established to work out the best method of implementing a non-reciprocal system of preferences in favour of developing countries as well as to discuss further the differences of principle. The Board unanimously approved this recommendation (paragraph 4 (c) of the resolution 9 (I) of the Trade and Development Board), and the Group met from 26 July to 5 August 1966.

The Group decided to examine some technical aspects of the granting of preferences on the basis of a working hypothesis that general non-reciprocal and non-discriminatory preferences would be granted. It was agreed however that this informal discussion would be held without prejudice to the positions of each individual country represented in the Group on these issues or on any particular point in the discussion. The report of the Group was noted by the Trade and Development Board at its fourth session in September and it will be transmitted to the second session of the Committee on Manufactures, which will be held from 31 January to 15 February 1967. The Board at its fourth session also approved that the second session of the Group on Preferences should be held concurrently with the second session of the Committee on Manufactures, namely, from 31 January to 8 February 1967.

(2) Additional measures and actions to increase the export of manufactures and semi-manufactures from the developing countries to all markets

The Committee examined at its resumed first session from 28 February to 9 March 1966 a report dealing with the measures and actions which could be taken by the developed countries with market economies to promote the imports of manufactured and semi-manufactured goods from the developing countries. In this respect the following aspects were examined:

(a) The establishment of focal or contact points by the developed countries to co-ordinate and promote imports from the developing countries;

(b) Technical and financial assistance for the developing countries in marketing their industrial products;

(c) Industrial co-operation and joint schemes and programmes for establishing production in developing countries of goods required in the developed countries, particularly the matching of demand in the developed countries with the capacity in the developing countries;

(d) Favourable treatment for the industries of the developing countries in the establishment of offices etc., and the granting of favourable terms in respect of production, export rights, patents etc.

The Committee on Manufactures then requested that this study be supplemented by two additional studies:

(a) One relating to the scope for the expansion of exports to the developed countries of manufactures and semi-manufactures from the developing countries and to the measures that the latter countries could take to increase such trade (see items (3) and (4) below under which this study is being carried out), and

(b) One relating to the measures to be taken by the socialist countries of eastern Europe for promoting their imports of manufactures and semi-manufactures from the developing countries.

In respect of these additional studies a report is being prepared for the Committee's second session in January-February 1967.

(3) An exhaustive study of world demand for and supply of, semi-manufactured and manufactured articles of actual or potential export interest to the developing countries

The Committee on Manufactures at its first session in August 1965 requested the Secretariat to carry out the following general studies as part of a continuing programme of work, taking into account the work which has already been done by other international organizations (TD/B/C.2/5): An exhaustive study of world demand for, and supply of, manufactured and semi-manufactured articles of actual or potential export interest to developing countries, and relevant trends of international trade in such articles.

The Committee at its resumed first session in March 1966 considered furthermore that it would be desirable if the Secretary-General of the

United Nations Conference on Trade and Development were to have available for submission to the International Symposium on Industrial Development a report showing what are the manufactured and semi-manufactured goods the present or potential international demand for which is such as to suggest the desirability of studying them in co-operation with the appropriate bodies of the United Nations, and the promotion of the corresponding export-oriented industries in the developing countries.

This study is being carried out by the Secretariat with the assistance and co-operation of the regional commissions. At present country surveys on the prospects for increasing exports of manufactures from developing countries are under way. Six country surveys have already been completed with the co-operation of ECLA in respect of Argentina, Brazil, Chile, Colombia, Uruguay and Venezuela. When similar surveys have been undertaken in respect of ECAFE and ECA countries, these should provide sufficient material for the supply side of the proposed world study.

A separate study is also being undertaken to determine the prospective demand in the developed countries in relation to the supply potential in the developing countries.

(4) Studies on sectors of industry with a current or potential export interest to the developing countries

The Committee on Manufactures requested that the Secretariat prepare studies on sectors of industry with a current or potential export interest to developing countries with a view to assessing the scope for increased exports from these countries. In view of this the following studies are being undertaken:

(a) An UNCTAD/FAO ad hoc intersessional working party of the Committee on Manufactures was established by the Board at its fourth session to examine ways and means of increasing exports of timber products from the developing countries, particularly to the developed countries. The first meeting of the Group is scheduled for 31 October - November 1966;

(b) A study of the present and future supply and demand for exports of processed iron ore from the developing countries;

(c) A study of the possibilities for increased exports of processed fish and fish products from the developing countries.

(5) Export promotion and technical assistance in the developing countries

The Committee on Manufactures is charged to co-operate with appropriate international bodies with regard to providing technical assistance to developing countries in the field of export promotion. In respect of measures and actions to expand the exports of manufactures and semi-manufactures from the developing countries to all markets (item 2), the Committee is required, among other things, to consider the following aspects:

(a) The establishment of trade information-trade promotion centres at national, regional and international levels;

(b) The provision of training facilities for personnel in the techniques of export marketing, advertising and research.

The role of UNCTAD in the field of technical assistance activities in trade and related fields was discussed by the Trade and Development Board in its fourth session in September 1966. The Board decided to recommend to the General Assembly that the Secretary-General of UNCTAD should be a member of the Inter-Agency Consultative Board of the UNDP. Furthermore, it recommended that the services available in UNCTAD be utilized in considering requests from the developing countries for technical assistance in the fields of export promotion and invisibles, including shipping, insurance and tourism. In this regard it invited the Secretary-General of UNCTAD to report to the fifth session of the Board.

II.E.10

ECA project: Export policies of Industrialization

Description:

The first joint meeting of the ECA Working Party on Intra-African Trade and the CAU ad hoc Committee of Fourteen on Trade and Development was held in Addis Ababa from 28 March to 2 April 1966. It was attended by delegations of fifteen Member States as well as by observers from FAO, GATT, IBRD and UNCTAD.

Recommendations were adopted regarding liberalization of intra-African trade, equitable distribution of benefits from economic co-operation and trade co-operation among African countries and industrial co-operation on a subregional basis, especially as they concerned the allocation of industries.

The ECA was requested to undertake studies on the basis of which a list could be drawn up of products which could be freely traded within subregions or within the region as a whole.

F. Industrial Financing and Credit Policies

II.F.1 CID project: Co-operation among Industrial Development Finance Institutions in Developing Countries

Authority: Economic and Social Council resolution 1030 A (XXXVII).

Description: A study for the purpose of promoting co-operation among industrial development finance institutions in developing countries.

The co-operation scheme takes two main forms: (1) exchange of information and experience between more experienced institutions and less experienced ones in regard to specific projects; (2) co-operation among institutions of certain countries which, by reason of geographical proximity and similarity of problems, might wish to undertake such activities as research and training and joint ventures.

The project involves: (a) publication of information on projects promoted by industrial development finance institutions in developing countries; (b) assistance in negotiations among institutions in the exchange of information and experience; (c) organization of regional and interregional conferences of industrial development finance institutions; (d) assistance in the planning and implementation of joint activities such as research and training. The study will be carried out by the Secretariat with the aid of consultants, conferences and workshops.

Duration: Initiated in July 1966. This is to be a continuing project.

Estimated cost and source of funds: Travel of staff, \$7,000; total (in 1967), \$7,000.

II.F.2 Fiscal and Financial Branch project: Regional Development Finance

Authority: Recommendations A.IV.9 and 10 of the first United Nations Conference on Trade and Development.

Description: A study to provide indications of appropriate patterns for the financing of multinational (regional and subregional) development projects and, generally, for the operation of regional development finance institutions.

The report will be based on documentary material available and on consultations with regional development banks and other regional agencies concerned.

Duration: A preliminary report on the subject was submitted in February 1966 to the UNCTAD Expert Committee on Expansion of Trade among Developing countries and on Regional Development (TD/B/AD.4/R.3). A revised version will be submitted to the International Symposium on Industrial Development and to the second session of UNCTAD.

Estimated cost and source of funds: Three man-months required.

II.F.3 **Fiscal and Financial Branch project: International Development Finance Institutions as Sources of Industrial Financing for Developing Countries**

Authority: This is part of a continuing programme of the Fiscal and Financial Branch. In response to General Assembly resolution 1715 (XVI), the Branch initiated the provision of more comprehensive analysis and information on the availability and terms of foreign financial resources for economic and particularly industrial development. A first survey of the multilateral and national, public and private financial institutions involved was contained in the fourth report in 1964, "The Promotion of the International Flow of Private Capital" (E/3905). A major part of the forthcoming report, "The Promotion of Private Foreign Investment in Developing Countries" will be devoted to the analysis of the operation of these institutions in the mobilization and channeling of private investment in industrial and other development projects in developing countries.

The present project responds more particularly to the relevant item included in the programme for the International Symposium on Industrial Development (E/C.5/110).

Description: The study will review the policies of international development finance institutions with regard to the financing of industries, their criteria for the granting of industrial loans and their operating experiences in that field.

It will cover public, regional and international development finance institutions, both within and outside the United Nations family.

The report will be based on available documents and on information obtained through correspondence and consultation with officials of the institutions concerned.

Duration: A preliminary report on this subject with special reference to the Middle East was submitted to the Conference on Industrial Development in the Arab States, Kuwait, 1-14 March 1965. The final report is to be submitted to the International Symposium on Industrial Development.

Estimated cost and source of funds: Five man-months required.

II.F.5 Fiscal and Financial Branch project: Export Credits and Development Financing

Authority: This project was initiated in response to a request made by the Committee for Industrial Development at its second session in 1962 (E/3600/Rev.1 - E/C.5/23/Rev.1, chapter V, E.1.) and General Assembly resolution 1715 (XVI), concerning advisory services to Governments on sources of development capital.

Description: A study to review national systems and international arrangements covering export credit and export credit insurance for the supply of capital goods to developing countries, for the purpose of analysing the role which such credits can play as an integral part of the flows of public and private capital for the financing of development projects.

The preparation of this study has been closely co-ordinated with the report "Private Export Credits from Industrialised to Developing Countries" which the IBRD is preparing in response to recommendation A.IV.14 of the first United Nations Conference on Trade and Development.

The study covers the evolution of export credits since the end of the Second World War and includes, as a special part, detailed country studies on the systems of nineteen export credit-providing countries. It contains an annex outlining the possible use of export credits and export credit insurance as a means for promoting exports by developing countries.

The report is based on information obtained through correspondence and consultations with officials of the institutions concerned.

Duration: Publication to be issued at the beginning of 1967 and submitted to the first session of the Industrial Development Board.

II.F.6 Fiscal and Financial Branch project: Recent Developments in Export Credits for Capital Goods Requirements of Developing Countries

Authority: This is a continuing project designed to follow up the study under II.F.5.

Description: A study on developments in export credit and export credit insurance policies procedures; terms and conditions will be reviewed periodically along the lines of the original study.

Duration: The first review is to be issued in the first part of 1968.

Estimated cost and source of funds: Three man-months required.

II.F.7 CID project: Preparation of Workshops on Financial Planning of Industrial Projects

Authority: Economic and Social Council resolution 1030 A (XXXVII).

Description: The project is conceived in two stages. The first stage involves research on: (a) working capital requirements of different industries; (b) financial structure of different industries; (c) other aspects of financial planning. The second stage involves the organization of national and regional workshops in developing countries. These workshops are intended for economic planners, promoters and managers of industrial projects, and for industrial financial analysts and industrial accounts.

Duration: Initiated in March 1966; first phase to be completed in mid-1967, the second phase is a continuing project.

Estimated cost and source of funds:

Cost of workshops	\$25,000
Consultants	<u>13,000</u>
Total (in 1967)	38,000

II.F.8 CID project: The Role of Commercial Banks in Financing Industry in Developing Countries

Authority: Economic and Social Council resolution 1030 A (XXXVII).

Description: A study prepared for the International Symposium on Industrial Development

 The study will assess the present contribution of commercial banks to the financing of industry in developing countries and will, based on the experience of selected developing as well as developed countries, indicate measures which would allow or induce the commercial banks to increase their share of industrial financing without causing inflation.

Duration: Initiated in April 1966; completed in January 1967.

Estimated cost and source of funds: Consultant, \$5,500.

II.F.9 CID project: Official Bilateral financial Assistance to Industry in Developing Countries

Authority: Economic and Social Council resolution 1030 A (XXXVII).

Description: A study prepared for the International Symposium on Industrial Development.

 The study will examine the policies governing the financial assistance provided by governments of developed countries, with particular reference to the terms on which loans are made available and the problems arising in connexion with the utilization of loans.

Duration: Initiated in March 1966; to be completed on 15 February 1967.

II.F.10 CID project: Study on Domestic Financing of Industries

Authority: Economic and Social Council resolution 1030 A (XXXVII).

Description: A study prepared for the International Symposium on Industrial Development.

The study examines the importance of self-financing in industrial development. It deals, moreover, with mobilization of savings and their channelling into industrial development and, in this connexion, discusses the role of commercial banks, life insurance companies, development finance institutions and the capital market.

Duration: Initiated in September 1965; completed in June 1966.

II.F.11 UNESOB/CID/project: Financing of Manufacturing Industry in Selected Countries of the Middle East

Authority: General Assembly resolution 1940 (XVIII) and Economic and Social Council resolution 1081 B (XXXIX).

Description: This study which was submitted as a discussion paper to the Conference on Industrial Development in the Arab Countries held in Kuwait is composed of three parts: the first part discusses institutions and measures; the second part examines sources of finance and their contribution to industrial financing, and the third part analyses the financing of selected industries.

The first part examines the institutional structure and government measures to promote industrial financing. The second part discusses such sources of finance as commercial banks, specialized financial institutions, government and foreign financing and domestic private financing. The third part analyses the working capital requirements of selected industries and their financing.

Duration: Completed in February 1966.

II.F.12 ECA project: Documentation for the Working Party on Manpower and Training

The following documents were presented by ECA to the meeting of the Working Party on Manpower and Training:

"National Machinery for Manpower Planning and Administration of Training" (E/CN.14/WP.6/1);

"Trained Manpower Requirements for Accelerated Economic Development of the West African Subregion" (E/CN.14/INR/113) (paper prepared in association with the ILO);

"Some Aspects of Manpower Requirements and the Training of Technical and Managerial Personnel for Industrial Development".

II.F.13

ECA project: Technical Education and Manpower Policies

Description:

The first meeting of the Working Party on Manpower and Training was held in Addis Ababa from 26 September through 1 October 1966 and was attended by nine country experts primarily concerned with manpower and educational planning and training administration in six African countries (Ethiopia, Kenya, Nigeria, Sudan, Tanzania and UAR) and by representatives of the ILO, UNESCO, FAO, WHO and OAU.

The central theme of the meeting was "Education and Manpower for Accelerated Development". Within this context specific consideration was given to recent departures and innovations in education motivated by development needs in both developed and developing countries; estimates of high-level manpower requirements for development; organizational framework for manpower planning action, and the need to develop African managerial and entrepreneurial capability.

The ILO, UNESCO, FAO and WHO co-operated with ECA in preparing working papers for the meeting.

G. Labour and Wage Policies

ILO projects: The information given below covers a fairly wide range of ILO activities related to industrialization falling under the general head of labour and wage policies. For the sake of clarity, it has been divided into two parts:

- (a) Wages and other terms of industrial employment;
- (b) Industrial relations procedures and social institutions.

This detailed presentation is preceded by a reference to recent policy decisions aimed at making industrial development a major unifying criterion in the programming of ILO activities.

II.G.1.

The Report of the Director-General to the 1966 session of the International Labour Conference (Report 1, Part I: Industrialization and Labour), which was entirely devoted to the labour problems of industrialization and the ILO's contribution to the solution of these problems in the framework of a concerted United Nations programme, was considered by the Conference at its 50th session (June 1966). The Conference adopted a resolution concerning the role of the International Labour Organisation in the industrialization of developing countries, re-affirming its resolve to participate fully in the United Nations development programme and calling for the submission to the 1967 session of the Conference of plans for adapting and intensifying the activities of the ILO relating to the industrialization of the developing countries within its own field of competence.

(a) Wages and other terms of industrial employment

II.G.2.

In 1966 a paper on industrial development and wage policy was completed as one of the ILO contributions to the Industrial Symposium on Industrial Development in 1967. The paper examined the points at which wage policy is relevant for the industrialization process and the principles on which it should be based if it is to help promote this process. Among the main issues discussed are those concerning the impact of policies with respect to minimum

wage levels and the structure of wages on the distribution, quality and effectiveness of the labour force, the implications of these aspects of wage policy for consumption and investment and for productivity changes and prices, and questions associated with the implementation of an appropriate wage policy for the promotion of industrial development in developing countries.

II.G.3.

In 1965 a study was made of recent research findings on the state and evaluation of certain wage differentials in developing countries centring on two questions: (a) are wage differentials wider or narrower in developing countries? and (b) have wage differentials widened or narrowed in certain countries in the recent past? The study was published in the International Labour Review of March 1966.

II.G.4.

In the pursuance of the resolution concerning Minimum Living Standards and their Adjustment to Economic Growth adopted by the International Labour Conference at its 48th (1964) session in 1965, a study was initiated of the role of minimum wage regulation in promoting a rise in minimum living standards in developing countries. The main purposes of this study are to explore the impact of minimum wage regulation on minimum living standards and on other economic and social goals and to evaluate the effectiveness of minimum wage regulation as a means of ensuring the attainment of acceptable minimum living standards in the light of these impacts. The study will serve as the basic Office document for the Meeting of Experts on Minimum Wage-Fixing Machinery and Related Problems, with particular reference to developing countries, to be convened in 1967. As part of this study an investigation covering primarily the manufacturing sector is in progress examining the economic impact of legal minimum wage administration on employment, capital intensity, prices and costs, occupational and interindustry structure of wages in a few selected developing countries.

II.G.5.

Within the framework of its industry-by-industry approach, and under its general programme, the ILO has included information on wages questions in reports prepared for the Tripartite Technical Meeting on Hotels, Restaurants and Similar Establishments (Report II: Methods of Remuneration, Geneva, 1965), for the eighth session of the Inland Transport Committee (Report III: Pay Structure in Rail Transport, Geneva, 1966). These studies cover both industrialised and industrializing countries.

- II.G.6. The ILO is making preparations for a meeting of Experts on Minimum Wage-Fixing Machinery and Related Problems with particular reference to developing countries to be convened in 1967.
- II.G.7. Preparations have also been begun by the ILO for the organization in 1967 of an interregional seminar on wages and a regional seminar on wages in Latin America.
- II.G.8. A symposium on the labour market and inflation organized by the ILO, International Institute for Labour Studies, was held from 24 to 26 October 1966. It was attended by twenty experts and examined methods of reducing inflationary wage pressure in conditions of full employment and economic growth. Particular attention was paid to the objectives and international implications of incomes policies; to the inflationary impacts of labour shortages, the wage structure and labour market institutions and to ways in which they might be mitigated. The Proceedings of the symposium will be published in book form towards the end of 1967.
- II.G.9. In 1966 the ILO provided technical assistance to the Government of Argentina on questions of prices and wages policy in relation to economic and social development, including industrial development.
- II.G.10. In 1966 the ILO provided technical assistance to the Government of Tanzania in formulating a wages and incomes policy in the over-all context of both short-term and longer-term planning for the economic and social development of the country, including its industrial development.
- b. Industrial relations procedures and social institutions.
- II.G.11. The ILO has begun a programme of studies and research on institutional aspects of development and industrialization; this programme includes, inter alia, a research project on social participation in the development process at various levels and a study on the role of trade unions in industrializing countries. It is hoped that this research programme will make it possible to formulate a better co-ordinated programme of practical action aimed at strengthening social and labour institutions.

II.G.12.

The ILO published two issues of Labour Management Relations Series in 1965, one reproducing the main international standards and guiding principles in the field of labour-management relations adopted by the ILO since 1944 as well as a list of ILO publications and articles on labour-management relations since that date, and the second reproducing the documents and proceedings of a technical meeting held in 1964 which considered certain aspects of labour-management relations within undertakings (recruitment, selection, placement and induction of workers; promotion procedures; grievance procedures; communications).

II.G.13.

The ILO prepared a report on labour-management relations in public industrial undertakings which has been considered by the ILO Asian Advisory Committee in 1966. This report was also circulated among the participants of the United Nations Seminar on Organization and Administration of Public Enterprises, held in Geneva from 26 September to 4 October 1964. The ILO's International Institute of Labour Studies began work on the following research projects towards the end of 1965:

- (a) "Participative management", a comparative and critical study of worker participation in management under different systems. A meeting of nine research consultants from France, Poland, Switzerland, United Arab Republic, United Kingdom, United States and Yugoslavia, was held at the Institute in Geneva from 18 to 29 July 1966 to start to develop a framework for field studies;
- (b) Labour leadership in developing countries;
- (c) Consensus and conflict in industrial relations systems.

II.G.14.

The following publications were completed in 1965 by the ILO's International Institute of Labour Studies and will be published early in 1967 by Macmillan and Co.Ltd., London:

- (a) Industrial Relations and Economic Development: papers presented to a research conference held at Geneva, 24 August - 4 September 1964. Edited by Arthur M. Ross, Professor of Industrial Relations, University of California;

(b) Collective Bargaining in African Countries: study prepared by B. C. Roberts, Professor of Industrial Relations, London School of Economics and Political Science, and L. Greyfié de Bellecombe, International Institute for Labour Studies.

II.G.15.

The International Labour Conference at its 50th session (Geneva, June 1966) considered the question of "Examination of Grievances and Communications with the Undertaking" and decided to include it in the agenda of its next ordinary session (Geneva, June 1967) for a second discussion with a view to the adoption of two Recommendations.

II.G.16

The ILO organized in 1965 under its regular budget a two-weeks Regional Seminar for Asia in Kandy (Ceylon) which was attended by forty-one participants coming from governments', employers' and workers' circles of twelve Asian countries. Extensive exchanges of views were held on various aspects of personnel management, including selection, recruitment and induction of workers, promotion, methods of workers' representation, grievances handling and machinery for collective bargaining and labour management co-operation.

II.G.17.

The ILO organized in co-operation with the Danish Government a five-week Interregional Seminar on Industrial Relations and Personnel Management in Denmark, which was attended by twenty-five participants coming from all parts of the world. It examined principal methods and practices of modern personnel management and their applicability in the developing countries. The cost of the Seminar was supported by the special Danish contribution to the EPTA programme for 1965/66.

II.G.18.

The efforts made by the Workers' Education Programme of the ILO to encourage and participate in trade union seminars and courses devoted to analysing questions regarding industrialization stress the importance of the related social and economic problems not only at the international, regional, national or sectional level but also from the viewpoint of the workers as full participants in the activities of society as a whole. Practically all major study programmes organized by international, regional and national trade union bodies in 1965 included items referring to a series of these problems. Examples of ILO collaboration with the trade union movement in this field were its

technical participation in the regional seminars held in Chile by the International Federation of Metal Workers (Concèpion) and by the Inter-American Regional Organization of Workers (ORIT) in collaboration with COMACH (Africa).

In both meetings designed to study questions related to economic integration, utilization and development of human resources, production and productivity and industrialization, ILO representatives participated actively and provided appropriate documents which were used as study materials.

II.G.19.

The International Institute of Labour Studies in 1965 held three international study courses on labour problems in economic development. Two of the courses were held in Geneva (8 March to 14 May 1965 and 10 June to 23 July 1965); the third, which was regional in character, was held in Ibadan, Nigeria (16 March to 17 April 1965). One of the principal sections of these courses dealt with the economic of development including options inherent in industrialization. The other subjects covered were: (a) manpower and employment questions, and (b) industrial relations.

The participants were selected mainly from government, trade union and employer quarters as being persons who already held positions of responsibility and showed promise of further advancement. Apart from the intrinsic value of the courses, which are a permanent feature of the work of the International Institute of Labour Studies, they also aim at achieving a multiplier effect and are used for developing and testing new methods suitable to help centres, especially in the developing countries, to build and run their own educational programmes in industrial relations and labour fields.

II.G.20.

ILO technical assistance projects concerning labour management relations consisted of various types of assistance. An expert was sent to Ceylon under EPTA Contingency Fund from May 1964 to December 1965, who assisted in the establishment and development of personnel departments in public sector undertakings and in the training of their managerial and supervisory personnel in labour and human relations. Another expert was in Uganda from August 1965 to August 1966 under EPTA to train labour offices in conciliation procedures and conciliation practices and to advise on the organisation and strengthening of the industrial relations

duties and to assist in their implementation, and by the Government of Ethiopia under EPTA, for an expert in labour-management relations and labour legislation.

II.G.21.

Experts in personnel management and labour-management relations at the undertaking level served as members of international teams of specialists under Special Fund projects in the field of management development and productivity in Argentina, Pakistan, the Republic of Korea, and Thailand. Requests for such experts are also being made to serve with Special Fund projects on management development or productivity in Iraq, Kenya, Tanzania and Venezuela.

II.G.22.

Following the advisory missions on labour-management relations composed of one ILO official and one expert from employers' and trade union circles in European countries sent to Iran, Lebanon and Viet-Nam in 1964 and 1965, mentioned in the last Consolidated Report (E/C.5/125/Add.1, p.27), a request for a mission of this type has been made by the Government of the Ivory Coast.

II.G.23

ILO technical assistance projects in labour legislation were conducted in Afghanistan, Burundi, Democratic Republic of the Congo, Rwanda and Thailand. The Governments of the Central African Republic, Ecuador, Greece, Nicaragua and Uganda received advice in drafting labour codes and other labour legislation. Action is being taken on requests to this effect received from Lesotho, Cameroon, Cyprus, the Dominican Republic and Morocco.

II.G.24.

The ILO's work concerning labour administration is concerned with the establishment, organization and day-to-day operation of departments of labour, including especially aspects of labour inspection, and therefore has a close bearing on the administrative framework of labour and wage policies. Information concerning projects for the training of officials for labour administration in industrializing countries is given under this heading, since chapter V of the Consolidated Report relates to training for industry.

II.G.25.

The International Labour Conference has called the special attention of Governments of member States to the importance of strong labour departments to assist in the framing and implementation of governmental programmes of economic and social development (in particular, industrialization programmes), utilization of human resources, labour law and

labour relations, occupational safety and health and - in certain countries - social security. The Conference has called upon the ILO to intensify efforts through technical co-operation and other appropriate means to help member States in their task.

II.G.26.

In 1965 the ILO had eleven experts in labour administration on the African continent. In Latin America there were five such experts, two of whom were regional experts. Two more experts for this region were being recruited at the end of the year. In Asia three experts, together with a regional expert, were dealing with similar problems. During the year two experts were assigned to the Middle East. As in the past, ILO assistance to developing countries in connexion with the training of senior and intermediate-grade officials in the field of labour administration has been given with the co-operation of specialized bodies in other countries. Courses organized in the Democratic Republic of the Congo and directed by ILO experts have made it possible to supplement the training of a number of officials by specialized instruction with special emphasis on the requirements of labour inspection. Seminars were also organized in China (Taiwan), El Salvador and Guatemala.

II.G.27.

Two important projects directed towards the training of administrators in the labour field were launched during 1965: the Advanced Training Centre for Labour Administrators in Africa at Yaoundé (Cameroon) and the Inter-American Labour Administration Centre in Lima (Peru). The Yaoundé Centre was organized in co-operation with the French Government at the request of fifteen French-speaking African States which wish to provide intermediate-grade staff in their departments of labour with supplementary training and a proper basis for advancement to higher grades. It seemed desirable that the training and advancement of such staff should be organized in a country or region where the conditions of work resembled those they would encounter in the course of their duties in their own countries. The Inter-American Labour Administration Centre in Lima is a regional training institutions which was set up in response to a wish expressed by the Inter-American Conference of Ministers of Labour at Bogota (May 1963), and to a request made by the Government of Peru. It organizes advanced training, carries out studies, sends out advisory missions and distributes documents and information in order to assist Latin American Governments which so desire to improve the operation of their departments of labour. An expert

has been appointed to direct the Centre for an initial period of six years, with the assistance of six other highly qualified experts in the field of labour administration, labour-management relations, labour inspection, occupational safety and health, and manpower.

II.G.28.

There is at present a realization that in order to participate effectively in the industrialization process, it is important for trade unions to establish their own labour research services to give them statistical, analytical and descriptive materials required to perform these functions efficiently. In order to meet this need, the Workers' Education Programme of the ILO supplied a labour research adviser to the African regional organization of the ICFTU, based in Lagos, Nigeria, in 1965 to help develop labour research services for African trade unions. The purpose was to improve the collection and analysis of information for use in collective bargaining and other aspects of trade union work. Research services help the unions to initiate new methods of solving the increasingly complex labour problems. Adequate labour research services equip the unions with the necessary tools to contribute towards industrialization and nation building. National projects in the development of labour research services have been carried out or are being implemented in such countries as Kenya and Singapore. The demand for such projects is expected to increase in the future. The contribution of the ILO towards these programmes is based on the fact that the organization is one in which the workers themselves play a leading role in the formulation of its policies. The principles of the ILO and its international standards based on long experience of tripartite collaboration in social and economic questions give the organization the confidence of the trade unions. Through the Workers' Education Programme, the ILO is thus helping unions to train the workers adequately as well as create the favourable atmosphere essential for the success of industrial development.

H. Technical Education and Manpower Policies

II.H.1 ILO projects. In 1965 a report was prepared on manpower planning and employment policy in economic development for the first session of the ILO Inter-American Advisory Committee held Buenos Aires, September 1965. The report made a preliminary analysis of the two major manpower problems in Latin America: (a) lasting and growing unemployment and underemployment, and (b) the general scarcity of trained manpower, and discussed policy measures for attacking these problems.

II.H.2. In 1966, taking into consideration the proceedings and conclusions of the afore-mentioned Committee and the additional material collected, an enlarged and completely revised report was prepared on manpower planning and employment policy in economic development as a basis for examination of this item by the Eighth Conference of American States Members of the International Labour Organization, held in Ottawa in September 1966. The report is divided into three main parts. Part I aims to identify the main problems encountered in the countries of the American continent in the field of employment policy and manpower planning in economic development. Part II attempts to define the measures and policies likely to be of help in surmounting these problems. Part III consists of a tentative evaluation of the ILO's operational activities in regard to manpower planning.

In both of the above-mentioned reports industrial development was treated as a major component in the process of economic development in Latin America, in the context of which the problems of manpower planning and employment policy were considered.

II.H.3. Consideration of the latter report by the Ottawa Conference led to the adoption of two resolutions on human resources planning which lay the basis of a proposed "Ottawa Plan for Human Resources Development" for the American region. The Plan calls in particular for action on the part of Governments in the region to formulate and implement human resources plans and programmes and on the part of the ILO to assist in the formulation and co-ordination of such programmes, to prepare and keep under review quantitative targets for employment creation and skill formation, to train personnel for drawing up manpower plans and implementing them and to undertake various studies.

II.H.4.

Work has been initiated for the development of coefficients relating employment to output, employment growth by occupations to total employment growth and training requirements to occupational growth. The main of these interrelated studies is both to seek a better understanding of patterns of employment growth as economic development proceeds and to develop tools which, particularly in countries lacking reliable and diversified statistics, may help in assessing and forecasting:

- (a) The employment-creating effects of output increases in different industries and sectors and in different countries classified according to levels of per capita income, scale of output in the sectors etc.;
- (b) Patterns of employment growth in different occupations as employment increases with economic development;
- (c) The quantitative training implications of different patterns of occupational growth.

While this project is based on macro-economic research on trends in the structure of employment, another project currently under way is designed to throw light through micro-economic studies on variations found in different countries in the occupational patterns of employment of more finely broken down economic sectors, especially the manufacturing sector. In particular, this study concentrates on differences in the employment ratio of certain key categories of manpower as related to output (occupational input coefficients), having regard also to the stage of development of the country considered, technology employed and level of productivity.

II.H.5

A third project which has just been initiated is designed to identify, and seek ways of overcoming, the political and social obstacles to increased employment.

In the first phase, the importance of different political and social "bottlenecks" (e.g. political instability, social patterns, etc.), in the way of increasing employment in the developing countries will be assessed. In the second phase, other factors, such as cultural mores, behavioural variations, motivations and incentives and other psychological, sociological and cultural elements will be studied. The object is to provide guidance for the formulation of employment plans and policies taking

due account of these factors using in particular the positive elements which are apparent in the society concerned.

II.H.6

With a view to throwing light on the adaptation problems which the advanced industrial countries might face in certain branches of industry as a result of structural changes including increased imports of manufactured goods from developing countries when industrial development in the latter countries proceeds at an increasing tempo, the ILO completed in 1965 and 1966 three studies concerning measures for facilitating the adaptation of the structure of employment to structural economic changes in western European countries. The two studies completed in 1965 are (a) a study of redundancy procedures in selected western European countries, by Professor C. Zarka, and (b) a study of international differences in factors affecting labour mobility - inter-industry, occupational and geographical - in selected countries of western Europe, by Professors F. Sellier and C. Zarka. Both studies were prepared on behalf of the Office of Manpower, Automation and Training of the United States Department of Labour. The third study, initiated in 1965 and completed in 1966, deals with inter-industry differences in structural redundancy practices (particularly in railways, steel, cotton textiles and telecommunication services in the United States and in the United Kingdom). The study was prepared on behalf of the Organisation for Economic Co-operation and Development.

II.H.7

Another study is in preparation whose main aim is to examine the relationship between employment expansion in industry and in tertiary activities in socialist countries during the period from 1950 to 1965. The study gives special attention to the effects of industrialization on structural changes in employment policy in the context of rapid structural change.

II.H.8.

As a follow-up of the study on shift work and employment expansion referred to in the last Consolidated Report (E/C.5/125/Add.1, p.14), a further study is in progress on a policy of optimum shift work in a socialist economy. It analyses the economic and social advantages and disadvantages of multiple shift work based on an examination of recent experience and experiments in this field in socialist countries.

II.H.9.

An article on industrialization and structural changes in employment in eastern European countries, by Professor A. Rajkiewicz, was published in the International Labour Review in 1966.

II.H.10.

The International Institute for Labour Studies organized a symposium on migration for employment in Europe from 12 to 15 October 1965, attended by seventeen experts from eleven countries. The discussion was based on twelve papers and focused on the economic aspects of migration (cost-benefit analysis), the effects of migration on social structures and potential conflicts involved. The symposium devised a framework for future research to deal in particular with the problems raised by the return of migrants to their countries of origin. A book based on the symposium and prepared by Pierre Grandjean, lecturer at the IILS, is due to be published in autumn 1966 under the title Les Migrations de Travailleurs en Europe by Librairie sociale et économique, Paris.

I. Scientific and Technological Development Policies

II.I.1. ECL project: Policy for Technical Progress

Authority: Resolution 3 (XV), 11 (XVI), 11 (XIX) and 11 (XX) of the Economic Commission for Europe.

Description: Paper prepared as the basis for substantive discussions at the fifth meeting of SLA and for consideration and review by the Preparatory Group of Senior Economic Advisers.

The paper deals with the differentiation between various forms of technical progress, scientific research oriented towards economic development, including government policies to be taken in order to promote, stimulate and facilitate further research, and producers demand for technical innovation, as determined by the structure of industries and prevailing internal and external market conditions, as well as policy measures which could influence the demand situation.

Duration: Study was begun in 1966 and is still undergoing revision.

II.I.2 Fiscal and Financial branch Project :

The Role of Enterprise-to-Enterprise Arrangements in the Transfer of Patented and Unpatented Technology to Developing Countries

Authority: General Assembly resolution 2091 (XX) and Advisory Committee on the Application of Science and Technology to Development, Third Report, paragraph 122. Also The Role of Patents in the Transfer of Technology to Developing Countries. (entry r VIII, No. VIII.B.1).

Description:

Pursuant to General Assembly resolution 1713 (XVI), the Fiscal and Financial Branch prepared The Role of Patents in the Transfer of Technology to Developing Countries (United Nations publication, Sales No.: 65.II.B.1.), which was submitted to the fifth session of the Committee for Industrial Development, the thirty-eighth session of the Economic and Social Council and the twentieth session of the General Assembly. On the basis of the conclusion reached in that study that patents cover only a part of the total technology needed for the industrialization of developing countries, it was recommended that further study in this field should encompass the full range of patented and unpatented know-how. The role of enterprise-to-enterprise arrangements in the transfer of patented and unpatented technical and managerial know-how to developing countries was first examined earlier in 1961 (E/3492), and a further report was issued in 1965 entitled "The Role of Enterprise-to-Enterprise Arrangements in Supplying Financial, Managerial and Technological Needs of Industrial Enterprises in Developing Countries" (E/4038). General Assembly resolution 2091 (XX) called for the continuation of this project, which is also included in the over-all programme of the Advisory Committee on the Application of Science and Technology to Development. The next stage will consist of (a) selected industry and country case studies designed to trace the actual experience in the transfer of patented and unpatented technology to developing countries through business-to-business arrangements, and (b) a study on measures to ease the financial burden of such transfers to developing countries.

The report will be based on information and data to be developed by teams in the countries to be covered by the study.

Duration:

Initiated in 1966; will probably be completed in 1968.

See also project No.II.b.2.

II.I.3

ECA project: Scientific and Technological Development Policies

Description:

The second consultative meeting between the Regional Group for Africa of the Advisory Committee on the Application of Science and Technology to Development and the ECA secretariat was held in Addis Ababa from 5 to 10 January 1966, and was attended by J.H.G. Pierson, Special Adviser on questions relating to Science and Technology, Salah El-din Hadayat member of the Advisory Committee, representatives of the ILO, FAO, WHO, UNESCO, and the UNDP and officials of the ECA. The meeting considered a list of projects proposed by ECA for the five-year plan of the Advisory Committee and perspectives for a fifteen-year plan for Africa in the fields of agriculture, industry, natural resources, transport, health, education, manpower and training, and application of existing knowledge, and made specific recommendations.

J. Regional Promotion of Industrial Markets

No reports have been received for projects under this heading.

Chapter III

INDUSTRIAL PLANNING AND PROGRAMMING

A. Methods and Procedures of Industrial Programming

ILO projects:

III.A.1

Between mid-1965 and mid-1966 a study was completed on the structure of demand for labour for the period 1960 to 1980 as one of the ILO contributions to the United Nations Interregional Seminar on Long-Term Economic Projections for the World Economy, held at Elsinore, Denmark, in August 1966. The study contains long-term employment projections for the years 1965, 1970, 1975 and 1980 by the nine major groups of the International Standard Classification of Occupations for twenty-three regions of the world. The projections are based on a model in which the proportion of the population in each of the nine major occupational groups in a country is treated as a function of per capita income, growth rate and the size of population. Separate summary estimates were made for each occupational group for the two major groups of regions - the developed and the developing. These employment projections provide some broad indications of the educational and training requirements involved.

III.A.2

A specific study of occupational requirements for industrialization is in preparation; the results will be presented to the International Symposium on Industrial Development. Part I of the study is devoted primarily to developing an analytical framework for determining the various types of manpower information and assessment needed for decision-taking as regards provision of skills in various types of situations (e.g., long-term, medium-term or short-term industrial development planning) as well as for decision-taking regarding provision of "critical" skills in each of the situations. A comprehensive appraisal will be made of the existing methods of, and facilities for, obtaining forecasts of occupational requirements, including suggestions for improving them at the national and the international levels, in the light of the analytical framework. Part II proceeds to examine the methodological and data problems involved in forecasting occupational requirements of regional goals for industrial development proposed by the reports and other documents of the regional symposia on industrialization. The study is scheduled for completion in 1966.

III.A.3

The statistical research activities of the ILO in relation to the introduction or development of manpower planning in the developing countries are almost invariably concerned with manpower for the economy as a whole. Manpower requirements for industry are covered but as part of the whole. One ILO study specifically concerned with industry related to the use of occupational composition patterns in manpower planning at the level both of the industry and of the undertaking, and to the establishment of occupation/education relationships for purposes of vocational training programmes.

III.A.4

ECAFE project: Asian Industrial Development Council

Description:

The functions of the Asian Industrial Development Council include the identification of areas of joint development of industries by two or more countries, preparation of feasibility studies, programmes of investigation and implementation of industries on a regional basis wherever possible.

In the matter of detailed planning and programming, particularly in regional projects, the AIDC will be assisted by an advisory group, which will consist of nine members chosen for their expertise from the member countries of the ECAFE both within and outside the region.

The work of the advisory group will be primarily preliminary economic analysis. It would advise on all matters within its competence referred to it by the Council, including the carrying out of feasibility studies concerned with projects on which there was broad initial agreement among the Governments and also feasibility studies in respect of national schemes for which there were requests from individual Governments. The advisory group might also, if requested by any member countries or a group of countries, examine national industrial development plans, and render advice with a view to:

- (a) Isolating possible areas of conflict and promoting harmonization;
- (b) Avoiding such conflicts or wastage of resources;
- (c) Providing the widest possible market for the products of the proposed undertaking, for the common benefit of all the countries concerned.

Besides the advisory group, it is also provided that the chairman of the AIDC may in consultation with the Executive Secretary of the ECAFE appoint ad hoc action groups of experts to assist in the implementation of specific industrial projects.

The ECAFE secretariat has initiated action for the selection and appointment of the members of the advisory group. The nominations received from the member Governments will be considered by the AIDC at its next meeting (February 1967) and the advisory group constituted.

III.A.5 EOE project: "Problems of Regional Planning and Development"
Economic Bulletin for Europe, Vol. 17, No. 2

Description: A study summarizing the discussion at and the results of the Third Meeting of Senior Economic Advisers, held in Geneva, October 1964.

The subject is divided into two parts: the review of past and present objectives in regional policies and the instruments used for the implementation of these objectives in European countries. Industrial development and industrial location are leading factors in regional policies - both from the point of view of promoting economic growth in under-developed regions and of checking the growth of over-developed regions. This problem has been examined by taking into account the inter-relationships between national and regional programming.

Duration: The review was begun late in 1964 and completed early in 1965.

III.A.6 EOE project: "Economic Planning in Europe", Economic Survey of Europe in 1962, Part I.

Authority: Terms of reference of the Commission; relevant resolutions and decisions of the Economic and Social Council and of the Economic Commission for Europe.

Description: This study contains an analysis of macro-economic planning methodology at the stages of formulating plan objectives and of constructing plans; it also reviews plan implementation. The contents dealing with the latter two stages are of particular relevance to the industrial sectors. In addition, the study reviews criteria for investment decisions in planned economies and examines the role of industrial enterprise in the institutional framework of such economies.

Duration: Study initiated in 1963 and completed in 1964.

III.A.8 **ECE project: Meeting of the ad hoc Group on Multilateral Planning**

Authority: Fourth meeting of the Senior Economic Advisers

Description: The ad hoc Group is to consider technical problems of linking over-all models with sectoral and regional models.

Duration: The Group is scheduled to meet in June 1968.

III.A.9 **ECE project: Construction and Practical Application of Macro-Economic Models for Purposes of Economic Planning (Programming) and Policy-Making. Fourth Meeting of the Senior Economic Advisers.**

Authority: Resolutions 3 (XV), 11 (XVI), 11 (XIX) and 11 (XX).

Description: The discussions were focused on what is the actual role and the position of a model builder vis-a-vis the administration and policy makers; and what is the possible role of model-building in different socio-economic systems. Four main groups of models were used in the discussion on the differences in the application of models by the various countries. Of more direct relevance to industrialization were the disaggregated macro models for medium-term planning, and the branch and sectoral models.

Duration: A preparatory group met in October 1965; the Fourth Meeting of the Senior Economic Advisers was convened in June 1966.

ILO projects.

III.A.10 The technical co-operation activities of the ILO in the field of manpower planning, though covering industry, were in no cases exclusively concerned with industry; industry was covered to a less or greater degree according to the importance attributed to industrialization in economic development plans, and to the stage reached in programming. Countries in which significant attention was given to industrial manpower in 1965 included China (Taiwan), Iran, Libya and Senegal.

III.A.11

At the turn of the year 1965/66 the ILO was giving technical assistance in various aspects of manpower planning in twenty-six countries. In addition, three regional advisers were operating. To illustrate the nature of these projects, a description is given below of the most comprehensive of them - that in Pakistan where assistance was being given by a team of experts to the various authorities concerned with manpower over a broad spectrum of activities, all related to achievement of the objectives of the third five-year plan.

Initially, the emphasis has been on improvement of diagnosis of the country's manpower problems and of the institutional machinery for manpower planning. Steps have been taken to improve the manpower information programme, to introduce quarterly sample manpower surveys, to prepare a comprehensive standard occupational classification suited to the present and future needs of the country and to establish occupational composition patterns of employment in industrial establishments. Data from the 1961 population census and the census of manufacturing industries have been converted for consistency with the breakdowns in the growth model of the Planning Commission. Studies are planned on the future occupational composition patterns of employment in industrial establishments. Studies are planned on the future occupational composition of employment and on increases in labour productivity. A classification of levels of education and training has been introduced and a start has been made with an annual inventory of higher educational and vocational training facilities covering such subjects as enrolment, drop-out rates and output. Attrition rates are to be calculated and balance sheets of higher-level manpower requirements and supply are to be drawn up. The employment potential of development projects is being examined with the Employment Promotion Board and this Board is being assisted in assessing the extent of surplus manpower, in determining means of employing it usefully and in identifying projects suitable for labour-intensive methods, particularly in rural works and construction programmes. Assistance is also directed to improving manpower services (including vocational guidance services) for implementation of such plans as are formulated. Most of these various activities are concerned with the labour force as a whole, but the relevance of some of them is greater to industry than to other sectors, and as industrialization progresses so it will take a greater share of the benefit.

III.A.12

In other countries receiving assistance in manpower planning, a selection of the above activities is covered, the exact nature of which varies according to the stage in planning reached and the national needs. Thus, in China (Taiwan), assistance covered formulation of the manpower aspects of the development plan. In Chile, an expert working with the central planning organization collaborated in determining manpower needs in the industrial sector, including immigration needs; he also helped in undertaking feasibility studies, from the angle of manpower and education, of various industrial projects and in the establishment of productivity measurement. In Libya, assistance covered the assessment of future occupational requirements for certain industries. In Burma, a number of positive enquiries relating to data essential for effective manpower planning were set in motion. In other countries assistance was largely concerned with the initial setting up of manpower planning machinery.

B. Organisational Requirements for Industrial Programming

No reports have been received for projects under this heading.

C. Development of Programming Data

ILO projects.

III.C.1

The collection, compilation, publication and analysis of national statistical data by the ILO contributes to efforts towards economic development by facilitating comparative studies covering countries at different levels of economic development and by assisting countries in the determination of goals for development programmes for five to ten years to more ahead based on experience in other countries. As stated in chapter I, international standards for statistics of labour cost per hour worked, thus far almost entirely lacking in the less industrialized countries, were adopted by the 11th International Conference on Labour Statisticians in 1966.

III.C.2

Considerable resources are being devoted in the ILO to study of labour force trends and compilation of projections. Close co-ordination is being maintained with the United Nations and particular attention is being given to developing countries where there is a scarcity of reliable statistics on the population and the labour force. An article was published in International Labour Review, February 1966, on "Size and Characteristics of Wage Employment in Africa: Some Statistical Estimates". Systematic projections of the labour force in the major regions and twenty-four subregions of the world have been compiled and issued in a paper prepared for the United Nations Seminar on Long-Term Economic Projections (Denmark, August 1966) under the title: "World and Regional Estimates and Projections of Labour Force, 1950-2000". An article was prepared for publication in the International Labour Review on "The World's Labour Force, 1960 and Changes in its Industrial Distribution, 1950-1960". This article also contains regional data. Work is continuing with the objective of obtaining systematic projections of the labour force for individual countries, including developing countries for which basic census data are incomplete. It is expected that the data provided by those projections will assist materially a number of countries which are launching programmes of industrial development, particularly those which do not have available facilities or trained personnel to carry out the relevant research work.

III.C.3

Other activities of the ILO designed to help countries develop and improve their statistical data include the publication of manuals on methods. A manual on methods of projecting the economically active population will be prepared and issued in 1967 in collaboration with the United Nations. Preliminary work has been done on manuals on methods of collection and compilation of wages statistics and on household expenditure surveys (family budgets), which will also be issued in 1967. A manual on methods of employment statistics is expected to be ready by 1968.

III.C.4

UNESCOB project: A Comparative Study of Investment Patterns and Industrial Growth Prospects in Selected Countries of the Middle East

Authority:

General Assembly resolution 2152 (XXI) and Economic and Social Council resolution 1180 (XLI).

Description:

The study is being prepared for the International Symposium on Industrial Development. It will analyse and assess the present state of industries, current plans for industrial development and the prospects of their success, and will contain policy recommendations based on the analysis and findings.

Duration:

To be completed in the third quarter of 1967.

III.C.5

UNESCOB/CID project: Industrial Planning, Programming and Policies in Selected Countries of the Middle East

Authority:

General Assembly resolution 1940 (XVIII) and Economic and Social Council resolution 1081 B (XXXIX).

Description:

This study, which was submitted to the Conference on Industrial Development in the Arab Countries, Kuwait, as a discussion paper, was composed of two parts: part one dealt with industrial planning within the context of over-all planning; part two analysed government policies and measures to promote industrialization.

The first part examined the history of planning and planning of the industrial sector, implementation of industrial plans, implementation machinery and programming techniques. The second part examined the institutional set-up, mobilisation of savings and investment, protection and incentives, industrialization and markets, and manpower and training.

Date of completion: February 1966.

III.C.6 UNESOB/CID project: A Compendium of Selected Statistical Tables on Manufacturing Industries in the Countries of the Middle East

Authority: General Assembly resolution 1940 (XVIII) and Economic and Social Council resolution 1081 B (XXXIX).

Description: A report prepared for the Conference on Industrial Development in the Arab Countries, Kuwait. The statistical tables, comprising the body of the report, represent a first attempt to collect and classify relevant data available on manufacturing industries in six Middle East countries: Iraq, Jordan, Kuwait, Lebanon, Saudi Arabia and Syria. This report is composed of four groups of tables: the first shows the current estimates of gross domestic product; the second gives a breakdown of manufacturing sectors for specific manufacturing industries according to ISIC major groups; the third shows the selected structural characteristics of the manufacturing sector, and the fourth category of tables is composed of miscellaneous data on various aspects of manufacturing activities in the respective countries.

Date of completion: February 1966.

III.C.7 CID project: Industrial Programming Data

Authority: Recommendations of the Committee for Industrial Development (E/4203, paras. 35-37). (Progress report submitted to the Committee at its sixth session, 1966, E/C.5/125/Add.1; section III.C.1, and E/C.5/109.)

Description: A continuous long-term project to provide "data-Bank" services by taking stock of, evaluating and organizing information representing experience in various developed and developing countries in the form of catalogue data. In conjunction with such services, investigation is being continued into the precise nature of raw materials required for the truly operational application of various programming techniques.

The project arises from the pressing need in connection with UNDP and various other international technical aid services, to provide ample reference data for industrial planning and programming, especially concerned with the preselection of industries, preparation of feasibility studies, evaluation of performance gaps etc.

The project is divided into three main branches:

- (1) Structural-functional profiles of industrial production at the "establishment" level;
- (2) Coefficients underlying the techniques securing interindustry resource balances, and
- (3) Detailed aspects of other "industry"-level information to be bridged with the plant-level programming data.

The first two of the above are designed to be a fixed-term project, which may be followed later by a broader programme of international co-operation on similar lines. (1) collects basic information from special inquiries addressed to actually operating individual manufacturing establishments in about ten countries, selected as "model" cases for each of the fifty specially designated industries; countries thus far included are: France, India, Israel, Japan and Yugoslavia; 100 to 200 catalogue establishments are filed for each country. For (2), basic information is drawn mostly from unpublished worksheets and special studies underlying the published form of interindustry data as they exist in various countries; the squared form of over-all interindustry relations is hinged on a classification involving some 200 productive sectors, while the internal structure of individual blocs will be described in greater detail. (3) is, at this stage, only loosely defined and includes synthetic evaluation of the results from (1) and (2), as well as analytical reorganization of existing industry-census data of various countries.

Collection of the basic information for branches (1) and (2), as explained above, is done by outside experts appointed to form ad hoc study groups in various countries. The specification of data to be collected and the standard form of compilation are given by CID specialists. Comparative analysis of stockpiled data is conducted using the CID facilities as well as those of the ad hoc study groups. UNDP experts in the field of industrial programming are kept in contact with this project to exchange views and information. Also, problems and possibilities are reviewed occasionally at the meetings of the ad hoc working groups composed of experts from various countries.

Duration:

(1) was initiated in the middle of 1965; (2) and (3) towards the end of 1965, pursuant to the recommendations made by the first ad hoc working group on industrial programming data which met in New York, 9-12 November 1965.

- (1) The pilot file of Yugoslav establishment data was completed in 1966; its copies became available early in 1967. The file of establishment data from four other countries, 50 per cent drafted as at the end of 1966, will be completed and finalized during 1967. The collection of data from five other countries is expected to commence in 1967.
- (2) The presentation and evaluation of detailed inter-industry data of Finland, France, Japan, Hungary, and the United States of America, set out in a special scheme of comparison, will be completed by late 1967.
- (3) Research and information services under this branch continues to meet occasional needs. Proceedings of the meeting of the first ad hoc working group on industrial programming data were reorganized and expanded by later contributions from experts for publication in Industrial Planning and Programming Series No.2.

Compiled data and research materials are used immediately by UNDP experts in the field. The project forms a base for promoting and expediting technical assistance activities entailing ad hoc industrial inquiries, data processing, staff training and other operations necessary to fill informational gaps for industrial programming. The project will also supply an additional source of basic data and research for the CID World Industry Survey.

Estimated cost and source of funds:

ESA account 22680-002 based on a grant of \$100,000 from the Swedish Government. Special service agreements authorized for twelve outside expert groups during 1966 at a cost of \$50,000.

ILO projects.

III.C.8

In co-operation with ILO and UNESCO, a Working Group on Statistics of Education was convened by the Conference of European Statisticians in Geneva from 4 to 8 October 1965. The Working Group made certain recommendations concerning the development of an integrated system of statistics of education designed, inter alia, to assist in the study of future manpower resources according to education and vocational skill. The programme of work in the ILO during 1967 and 1968 includes provision for development of proposed international standards for vocational training statistics intended to be submitted to a future session of the International Conference of Labour Statisticians.

III.C.9

ILO labour statistics projects in force in 1966 included a regional project concerning a survey of labour costs in Latin America and nine country projects. In addition, regional labour statisticians (three) were posted in Africa, Asia and Latin America to assist countries of these regions in the development of labour statistics.

III.C.10

Efforts to promote industrialization and to reduce barriers to international commerce have focused attention on relative production costs, of which wages and other labour costs are vital factors. The survey of labour costs covering a number of Central American countries and completed in 1965 was mentioned in the last Consolidated Report (E/C.5/125/Add.1, page 31). A similar Latin American regional project covering a number of South American countries and Mexico is now in progress. After completion of the preparation work, the field work for the survey of labour costs will begin in 1967.

III.C.11

Country projects in labour statistics in course during 1966 were:

- labour statistics in general: Chile, Iran, Syria and Thailand;
- manpower statistics: Greece, Malawi, Nigeria and Philippines;
- labour productivity statistics: Argentina (Special Fund project on productivity development).

III.C.12

Generally, the labour statistics projects are for one year in the first instance (Malawi - 1 1/2 years), although frequently they are extended to as much as three years or more (as in the cases of Chile, Iran and Nigeria above). The project in Greece is an exception and consists in providing a consultant on labour force sample surveys for two months.

III.C.13

Projects approved but not yet implemented relate to labour statistics in general: Cambodia, Malaysia, Venezuela; manpower statistics: Israel; Pakistan (Special Fund project on manpower planning); consumer prices statistics: Malawi; labour productivity statistics: Israel.

All the above-mentioned projects are financed by the UNDP except two which are financed by the ILO regular budget, namely, the regional project - labour cost survey in South America and Mexico, and the regional labour statistician in Africa.

D. Formulation and Implementation of Industrial Plans and Programmes

III.D.1 ILO project. In accordance with the resolution concerning the concept of democratic decision-making in programming and planning for economic and social development which was adopted by the Conference at its 48th (1964) session, the ILO has begun a programme of studies on the basic problems and techniques of consultation and participation in all aspects of forecasting, programming and planning of economic and social development. These studies include a series of national monographs dealing with systems of participation in planning and programming in selected countries as well as studies of a more general character exploring the prerequisites for effective participation, particularly in industrialising countries. The project will lead to various publications to appear in 1966 and 1967.

III.D.2 CID project: New Approaches to Implementation and Follow-up of Industrial Projects

Authority: Committee for Industrial Development at its sixth session (E/4203 - E/C.5/150).

Description: Studies for submission to the 1967 International Symposium on Industrial Development and for circulation to planning and implementation bodies and field experts in many countries for their comments. The comments will be used as a basis for a manual on "New Approaches to Implementation of Industrial Projects".

The studies cover:

- (a) Exploring and deriving operational techniques of essential importance to implementation planning of industrial projects;
- (b) Deriving operational approaches to solve implementation problems: time-cost trade-offs of project activities and allocation of limited resources to meet certain constraints as well as the schedule project completion date;
- (c) Applying these techniques in case of multi-project implementation.

The studies are a follow-up of the Interregional Symposium on Project Evaluation and Formulation held in Prague in 1965. They will be carried out as a joint effort by an expert hired by the CID and a CID staff member.

Duration: Initiated and completed in 1966.

Estimated cost and source of funds: \$2,500 and 4 man-months on the part of the CID staff member; International Symposium funds.

III.D.3 CID project: Industrial Location Planning

Authority: Economic and Social Council resolution 1081 B (XXXIX).

Description: A paper for the International Symposium on Industrial Development.

Responsibility for the paper has been divided between the Industrial Policies Section and the Industrial Programming Section, with the former handling objectives of industrial location policy and measures to promote their achievement, and the latter preparing part II, "Literature and Research on Location Factors", which reviews the main location factors, location theory and empirical research, and offers an assessment of theory and research.

The project is related to the Interregional Seminar on Industrial Location and Regional Development, and to technical assistance activities with respect to problems of regional development.

Duration: Initiated and completed in 1966.

Estimated cost and source of funds: Four man-months of work; International Symposium on Industrial Development funds.

III.D.4 CID project: Sectoral Planning and Programming Studies

Authority: Committee for Industrial Development (E/4203-E/C.5/150) and recommendations of the Interregional Symposium on Industrial Project Evaluation.

Description: Studies to provide information on programming data and techniques to be used in planning and programming at the sectoral or industry branch level by planning officers and technical assistance experts in the developing countries.

The broadly defined targets for the industrial sector given in the central plan have to be translated into detailed, quantitative and consistent targets for individual branches and industries, and then into specific industrial projects or investment opportunities. To bridge this gap between the over-all economic plan and the development of a bank of feasible projects requires planning and programming work at different levels: for the whole of manufacturing industries, programming industrial branches or sectors, and programming of specific industries.

On the basis of reports prepared by expert consultants and staff, studies are prepared for publication in the Industrial Planning and Programming Series or in the Bulletin on Industrialization and Productivity. Two studies on pre-investment or programming data for petroleum refineries and the chemical industries have been published in Bulletin on Industrialization and Productivity, No. 10, and the Arab issues of the New Industrial Planning and Programming Series is devoted to a study entitled Techniques of Sectoral Economic Planning: The Chemical Industries.

The project is related to technical assistance activities in the field of industrial planning and programming; to the work of ECLA in sectoral programming at the regional level, and to the activities in the field of development planning in general of the Centre for Development Planning, Projections and Policies.

Duration:

Initiated in 1964; results of present phase to be published in 1967. However, this is envisaged as a continuing project to provide similar studies of all other relevant industry sectors.

Estimated cost and source of funds:

Two man-months of professional work, plus funds for consultant and cost of publication. To be met from consultant funds and publications budget.

III.D.5

OID project: Studies on the Role of the Industrial Sector in Economic Development

Authority:

Economic and Social Council resolution 1081 B (XXXIX) and Committee for Industrial Development (E/4203-E/C.5/150).

These papers, to be presented to the International Symposium on Industrial Development, are to aid in considering the factors affecting the formulation of the strategy of industrial development in countries at different stages of development and with domestic markets and resource endowments of different sizes.

They are analytical and empirical studies of the relationship between industrial development and development of other sectors. They examine the structural changes taking place in the economy concurrently with economic growth and industrialization, as, for example, changes in the composition of output and in the occupational distribution, and discuss the consistency of multiple objectives for industrial development, such as employment and growth maximization, balance of payments equilibrium, diversification and exploitation of natural resources etc. It is expected that the results of these studies will be useful for the developing countries in their long-term planning of the development of the industrial sector and its links with the other sectors of the economy.

The project is related to technical assistance activities in the fields of industrial planning and programming and development planning in general.

The papers are prepared by the Secretariat with the aid of a supporting background document prepared by an expert consultant.

Duration:

Initiated and completed in 1966.

Estimated cost and source of funds:

Four man-months professional staff work, 2-1/2 man-months statistical clerical work, 75 minutes electronic computer time, plus funds for consultant. To be paid for from funds for the International Symposium on Industrial Development.

10 projects.

III.D.6

The 1965 session of the ILO Metal Trades Committee considered a report reflecting the research programme described above and analysing briefly the various systems of planning and programming, the methods and procedures of participation by occupational organizations and the problems arising from such participation in the field of industrial relations. The Committee unanimously adopted conclusions concerning the role of employers' and workers' organizations in programming and planning in the metal trades.

III.D.7

In 1965, the ILO in co-operation with the Economic Commission for Latin America and the Institute for Development Planning started to organize a seminar in Santiago, Chile, for trade unionists drawn from fifteen Latin American countries, on the subject of trade union participation in social and economic planning. The origin of the course may be traced to requests to the ILO by international and national trade union organizations, followed by consultations with the co-sponsors. The purpose of the seminar is to provide trade union representatives with a clear perspective of the objectives, principles and techniques of social and economic planning, and the methods by which the unions might make a useful contribution to teaching the principles and techniques of planning policies and to indicate the importance of social and economic planning in relation to labour relations and conditions of life and work. Follow-up activities are being arranged through the ILO regional workers' education advisers, who help the participants to spread the knowledge acquired at the seminar when they return to their own countries. These courses arise from the experience in many countries that effective participation by trade unions in social and economic development programmes may be handicapped by lack of trained unionists to sit on planning bodies.

III.D.8

The Santiago course is the first of a series of such seminars planned for Africa (1966) and other regions of the world. The aims of these courses are identical in the sense that many trade union leaders in Africa, Asia and the Middle East, as well as Latin America, are realizing that they are being increasingly called upon to participate in bodies dealing with socio-economic questions involving the preparation and execution of important national plans, and that in order to make an

effective contribution, the trade unionists must be sufficiently trained in the methods and techniques of the subjects. It was the realization of these responsibilities that led trade unionists from many countries to request the ILO to organize suitable courses. Each of these courses includes twenty-five to thirty participants and costs \$20,000 to \$25,000. Since they represent close co-operation between the ILO and trade union organizations, the regional courses, as well as national follow-up seminars, are financed by the ILO's regular budget.

III.D.9

CID project: Interregional Seminar on Industrial Location and Regional Development

Authority:

Committee for Industrial Development, fifth session, and recommendation of the Interregional Symposium on Industrial Project Evaluation.

Description:

The purpose of the Seminar is to provide an opportunity for discussion of the methods and policies of industrial location, taking into account the problems of interregional income and growth disparities that beset developing nations.

The attention of the Seminar will be centred mainly on the relationship between alternative patterns of intra-national location of industry and the growth objectives of developing countries as well as on the programming methodology and government policies required to achieve the desired pattern of location.

Responsibility for the preparation of the material for the Seminar has been divided between the Industrial Policies Section and the Industrial Programming Section. The subjects assigned to the Programming Section fall into the following five broad categories: (a) appraisal of the criteria for industrial location and regional development; (b) requirements for, and techniques of, location programming; (c) role of interindustry linkages in industrial location; (d) role of infrastructure development in industrial location and regional development; (e) achieving consistency among national, regional and undivided project planning. Studies for discussion of these topics have been commissioned from outstanding experts from many countries or have been prepared within the Section.

The Seminar is related to technical assistance operations with respect to problems of regional development as well as dissemination of relevant information, including a volume of essays and "Operation Guide to Industrial Location".

Duration: Initiated late in 1965; to be completed in 1967.

Estimated cost and source of funds: \$25,000 for consultant, to be met from consultant funds and from technical assistance funds.

III.D.10 CID project: Ad Hoc Meeting of Experts on the Role of Advanced Skills and Technologies in Industrial Development

Authority: Committee for Industrial Development (E/4203-E/C.5/150).

Description: Meeting to examine how the developing countries could benefit in their industrial development from the revolutionary changes taking place at the present time in science and technology in order to spur the development of their economies.

The meeting will examine the problems and implications in the framework of their impact on techniques and data for industrial programmes in developing countries. It will precede and also serve to prepare the ground for the Interregional Seminar on the Role of Technical Progress in the Industrialization of Developing Countries being planned for 1968.

International experts will be invited to present studies for discussion, evaluate the work programme and make recommendations on future research as well as on areas for training and technical assistance activities. Several papers have been commissioned from outstanding experts on such aspects as (a) the relationship between productivity and the occupational distribution - adjusted by the level of education - in manufacturing industries; (b) planning and programming methods for skill requirements and productivity change; (c) case studies of the development of selected skill-intensive industries implying the transfer of advanced technologies in countries that have recently undergone rapid structural change and achieved fast economic growth; (d) analysis of the relationship between endogenous technical change and economic growth, implications with

regard to the allocation of resources for technical education; (e) classification and analysis of skill-intensive industries; (f) transmission of technical knowledge among the various sectors of the economy, skill requirements, skill acquisition and flow of skills among industries; (g) dynamic effect of certain industries and technologies in the development of the labour force and on other industries.

The meeting is related to technical assistance activities in the field of industrial planning and programming and manpower planning; to the activities of the ILO on automation; to OECD and UNESCO on policy formulation and planning of scientific research and education; the work of ECLA on application and adaptation of technology in Latin America, and to the AID project for collecting international data on occupational distribution by industries.

Duration:

Initiated in 1966; to-be completed in 1967.

Estimated cost and source of funds:

Three man-months of professional staff work; funds for consultant. To be met from expert group funds.

E. Formulation and Evaluation of Industrial Projects

III.E.1 CID project: Implementation and Follow-up of Industrial Projects

Authority: Committee for Industrial Development, sixth session (E/4203-E/C.5/150).

Description: A study for submission to the 1967 International Symposium on Industrial Development and a follow-up of the Interregional Symposium on Project Evaluation and Formulation held in Prague in 1965.

The study covers:

- (a) Problems confronting developing countries in their efforts to implement industrial projects and the investigation of how implementation should be approached as a dynamic process;
- (b) Establishment of efficient administrative, organisational, managerial and programming procedures to promote implementation and follow-up of industrial projects;
- (c) Establishment of effective systems of reporting and periodic revision so that more reliable decisions and corrective measures may be taken to attain industrialisation targets.

The project is a joint one by the Secretariat and consultants.

Duration: Initiated and completed in 1966.

Estimated cost and source of funds: \$1,200 and three man-months on the part of CID staff. Financed from International Symposium funds.

III.E.2 CID project: Manual on Industrial Project Formulation and Evaluation

Authority: Recommendation of Interregional Symposium on Industrial Project Evaluation. Endorsement of the Committee for Industrial Development at its sixth session (E/4203-E/C.5/150).

II.E.

Description:

A manual to provide industrial project evaluators in developing countries and technical assistance experts with basic reference information to help in carrying out commercial and social cost-benefit analysis.

The case study method will be used in the preparation of the manual, the case studies originating from different countries. The manual will also make use of the experience gained in training workshops (see projects on training workshops in section E below).

The manual will be prepared by the Secretariat in collaboration with consultants. A comprehensive outline has already been prepared and supporting research is being carried out.

Duration:

Initiated in 1966; to be completed in 1967.

Estimated cost and source of funds:

\$12,000, which includes the cost of studies to be utilised in training workshops. To be financed from consultant funds.

III.E.3

OID project: Project Formulation and Evaluation within the Framework of Industrial Programmes

Authority:

Committee for Industrial Development, sixth session (E/4203-E/C.5/150).

Description:

Paper for presentation at the International Symposium on Industrial Development to be held in 1967.

The paper deals with the problems of optimal and consistent relationship between single projects and the aggregate industrial development strategy. There are three main sections respectively dealing with project evaluation and the development plan, the purview and methodology of project evaluation, and stages in the preparation of sectoral programmes, using electricity and engineering projects as examples. There is also a mathematical annex illustrating the use of the linear programming technique in tackling the problem of the consistency of individual projects with all the other projects.

The paper relates to the consensus of the Symposium on Industrial Project Evaluation, held in Prague in

October 1965. The subject matter will be useful as a basis for technical assistance activities including the workshops on industrial project evaluation.

The study was prepared by a consultant and a staff member.

Duration: Initiated and completed in 1966.

Estimated cost and source of funds: \$1,000 plus three man-months. Financed from International Symposium funds.

III.E.4 CID project: Ad hoc Group Meetings on Industrial Project Formulation and Evaluation (India)

Authority: Recommendation of Interregional Symposium on Industrial Project Evaluation. Endorsement of the Committee for Industrial Development, (E/4203-E/C.5/150, paras. 33 and 34).

Description: Meetings for the purpose of training technicians of developing countries in methods of quantitative assessment of commercial and economic profitability in formulating industrial projects and evaluating their impact on industrial development; discussing and defining the responsibility of policy makers in project formulation and evaluation with emphasis on concepts, attaching of relative weights to different objectives and determining the social rate of discount.

For four weeks, expert teachers, specialized in this field, gave lectures, led discussion groups, and directed study sessions on the basis of teaching material prepared by consultants and CID staff. A project submitted by the Government was analysed in depth by the participants, in order to render the techniques taught directly relevant to the economic environment of the host country.

Stemming from the substantive conclusions of the Prague Symposium, and related to other CID activities in the fields of industrial location, training, export industries and industrial programming data, the project contributes directly to the formation of trained industrial cadres in developing countries.

Duration: From 26 December 1966 to 22 January 1967.

Estimated cost and source of funds: \$15,500; financed from departmental consultant funds.

III.E.5 CID project: Training Workshop in Industrial Project Formulation and Evaluation (Ceylon)

Authority: Recommendation of Interregional Symposium on Industrial Project Evaluation. Endorsement of the Committee for Industrial Development, (E/4203-E/C.5/150, paras. 33 and 34).

Description: Workshop for the purpose of training technicians of developing countries in methods of quantitative assessment of commercial and national economic profitability in formulating industrial projects and evaluating their impact on industrial development.

For three weeks, expert teachers, specialised in this field, gave lectures, led discussion groups, and directed study sessions on the basis of teaching material prepared by consultants and CID staff. A project submitted by the Government was analysed in depth by the participants, in order to render the techniques taught directly relevant to the economic environment of the host country.

Stemming from the substantive conclusions of the Prague Symposium, and related to other CID activities in the fields of industrial location, training, export industries and industrial programming data, the project contributes directly to the formation of trained industrial cadres in developing countries.

Duration: From 5 to 24 December 1966.

Estimated cost and source of funds: \$13,670; financed from technical assistance funds 1966 unprogrammed resources.

III.E.6 CID project: Training Workshop in Industrial Project Formulation and Evaluation (Mexico)

Authority: Recommendation of Interregional Symposium on Industrial Project Evaluation. Endorsement of the Committee for Industrial Development, (sixth session (E/4203-E/C.5/150, paras. 33 and 34).

Description: Workshop for the purpose of training technicians and policy makers of developing countries in methods of quantitative assessment of commercial and social economic profitability in formulating industrial projects and evaluating their impact on industrial

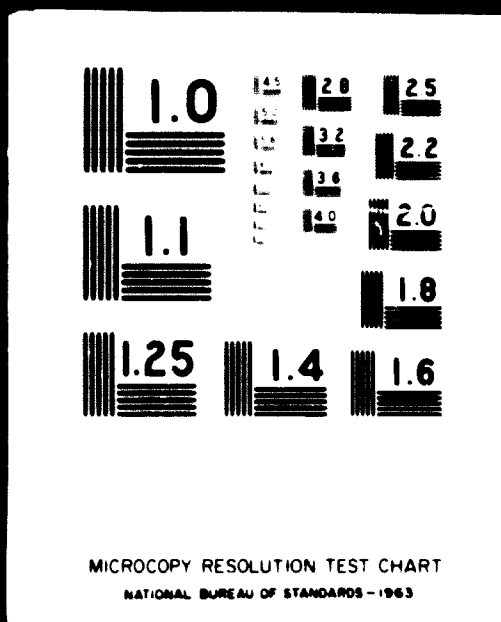


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development; discussing and defining the responsibility of policy makers in project evaluation with emphasis on concepts, attaching of relative weights to different objectives and determining the social rate of discount.

For two and a half weeks, expert teachers, specialized in this field, gave lectures, led discussion groups, and directed study sessions on the basis of teaching material prepared by consultants and CID staff. A project submitted by the Government was analysed in depth by the participants, in order to render the techniques taught directly relevant to the economic environment of the host country.

Stemming from the substantive conclusions of the Prague Symposium, and related to other CID activities in the fields of industrial location, training, export industries and industrial programming data, the project contributes directly to the formation of trained industrial cadres in developing countries.

Duration:

From 20 June to 8 July 1966.

Estimated cost and source of funds:

\$11,875; financed from technical assistance funds (contingency funds) and CID consultant funds.

F. Implementation of Projects for the Establishment of
New or the Expansion of Existing Industries

No reports have been received for projects under this heading.

Chapter IV

SMALL-SCALE INDUSTRY

A. Public Policies for Small-Scale Industrialization

ILO projects.

IV.A.1

In the ILO's contribution to the last consolidated report, the role of small-scale industries in the process of industrialization was briefly discussed together with the reasons for ILO concern with small-scale and handicraft industries. This programme was the subject of considerable comment during the debate on industrialization at the International Labour Conference in June 1966, in the course of which representatives of Governments, Employers and Workers in the course of which representatives of Governments, Employers and Workers emphasized their interest in the strengthening and extension of the programme.

In the course of the year, further progress has been made towards the development of a policy with respect to small-scale industries which will both further the objective of the development of employment opportunities as part of industrial and general development and also incorporate those aspects of the programme concerned with the organization of small-scale industries in co-operative action, the application of labour legislation, and other aspects of ILO programmes relating to the development and well-being of the workers. An agreement was reached with the Centre for Industrial Development of the United Nations Secretariat on collaboration in the execution of small-scale industry projects which will allow each institution to exploit to the full its special competences. This collaboration will become effective as experience is gained in working together in future projects.

IV.A.2

ECA project: The Role of Small-Scale Industry in the Industrialization of Africa

Description:

The ECA prepared for the Industrial Symposium in Africa a paper containing a general discussion of the role of small-scale industry in the industrialization of Africa. It also discussed the institutional framework required for development of small-scale industries.

IV.A.3

ECA project: The Development of Small-Scale Industry in the West African Subregion

The ECA presented to the West African Meeting on Economic Co-operation a paper on the above subject. which discussed the nature and significance of small-scale industry, its role in the present industrial situation in West Africa, growth prospects and policy implications. It recommended the establishment of advisory centres, industrial estates and hire-purchase facilities. The meeting approved of the setting up of a subregional Small-Industry Centre in Niamey to be initially staffed by ECA. The Centre will commence operations in December 1966 and will be housed in the ECA Subregional Office.

IV.A.4

CID project: The Role of Small-Scale Industry in the Industrialization of Developing Countries and Policies and Measures for the Promotion of Small Industries

Authority:

Resolutions on the International Symposium on Industrial Development.

Description:

The main paper for discussion of issues and policies of small-scale industry development at the International Symposium on Industrial Development.

The paper discusses the development of small-scale industry within the framework of over-all industrialization policies and presents guidelines for government policies, programmes and measures for the promotion of this sector on the basis of knowledge and experience gained by CID over a period of seven to eight years through research studies, seminars and technical assistance operations, including provision of direct advisory services to Gover Governments.

The first part contains the summary of a comparative analysis of statistical data relating to the place of small-scale industry in the industrial structure of advanced and developing countries. The second part discusses the main issues and policies of small-industry development, including promotion of entrepreneurship, selectivity in development and location of small-scale industries, the role of the Government and the scope of measures of promotion, assistance and servicing.

The paper was prepared by the Secretariat on the basis of a large number of studies and reports issued by the United Nations, including the above-mentioned statistical survey entitled "Small-Scale Industry: Its Place in the Industrial Framework" (see IV.A.5 below), commissioned for submission to the International Symposium as a background document.

Duration: Initiated December 1966; to be completed February 1967.

Estimated cost and source of funds: Authorized CID budget.

IV.A.5 CID project: Small-Scale Industry: Its Place in the Industrial Framework

Authority: CID work programme.

Description: A paper prepared for submission to the International Symposium on Industrial Development as a background document. It is intended to provide policy guidelines to developing countries on the basis of a survey of the place of small-scale industry in the economies of both advanced and developing countries.

The study was used in preparing the above-mentioned paper "The Role of Small-Scale Industry in the Industrialization of Developing Countries" (see IV.A.4) and will be submitted to a working party on potentialities and limitations of small-industry development to be convened in 1968 and 1969.

The paper presents a statistical analysis of small-scale industries (number of establishments, value added per establishment, number of persons per establishment, value added per employee, wages per person) and comparisons with larger manufacturing establishments in a number of developed and developing countries.

The paper was prepared by a consultant.

Duration: April to August 1966.

Estimated cost and source of funds: \$3,000; departmental consultants fund.

IV.A.6 CID project: Four Country Studies on Subcontracting: United States and Puerto Rico; France and other Western European Countries; Japan, and India.

Authority: CID work programme.

Description: Papers prepared for submission to the International Symposium on Industrial Development as background documents. They are intended to serve as a basis for the preparation of the study "Interrelations between Small and Large Industries - A Study of Subcontracting" referred to in IV.A.7.

The papers form part of a very important project, the justification for which is set out in IV.A.7. East country study describes the present status of subcontracting, including extent, types, methods of subcontracting, measures to promote it, regulatory measures, role of government, unions etc., and contains an assessment of national experience.

The four studies were prepared by four consultants.

Duration: January to August 1966.

Estimated cost and source of funds: Total cost: \$12,800; departmental consultants fund.

IV.A.7 CID project: Interrelations between Small and Large Industries - A Study of Subcontracting

Authority: Resolutions on International Symposium on Industrial Development.

Description: A paper prepared for the International Symposium on Industrial Development to serve as a basis for discussion. It is intended to provide Governments with guidelines on subcontracting as a means of promoting small-scale industries in the developing countries.

A comparative analysis of subcontracting in the United States and Puerto Rico, France and other western European countries, Japan and India, including a discussion of the major factors influencing the development of subcontracting, a study of alternative methods of organizing subcontracting and recommendations for the promotion of subcontracting in the developing countries.

The paper represents a pioneering study to fill a major gap in the literature on economic development: the analysis and the country studies (see IV.A.6) provide the first systematic study of subcontracting in advanced and developing economies to be published anywhere.

The analysis was prepared by the consultant who wrote the country study on the United States and Puerto Rico. The analysis and the country studies will be published by the United Nations in 1967.

Duration: Initiated August 1966; completed December 1966.

Estimated cost and source of funds: \$2,000. International Symposium consultants funds.

IV.A.8 **CID project:** Stimulation of Entrepreneurship and Assistance to Small Industrialists at the Pre-Investment Stage

Authority: CID work programme.

Description: Paper prepared for submission to the Seminar on Small-Scale Industry in Latin America to serve as a basis for discussion. It is intended to assist national authorities in charge of small industry development, technical assistance experts etc. in stimulating entrepreneurship in small-scale industries.

The study consists of a description of methods of stimulating entrepreneurship through feasibility studies, area surveys, market surveys, model schemes and related services at the pre-investment stage.

It is one in a series of projects on promotion of small-scale industry.

The paper was prepared by staff of CID.

Duration: June to August 1966.

Estimated cost and source of funds: Authorized CID budget.

IV.A.9 CID project: Policies and Programmes for the Establishment of Industrial Estates

Authority: Resolutions on the International Symposium on Industrial Development.

Description: A paper prepared for the International Symposium on Industrial Development to serve as a basis of decision. It is intended to provide Governments with guidelines on the establishment and operation of industrial estates for small-scale industries.

Industrial estate development is a major field of activity of CID. The paper offers guidelines for government policies, programmes and projects in the field of industrial estates on the basis of knowledge and experience gained by CID over a period of seven to eight years through research studies, seminars and technical assistance operations, including provision of direct advisory services to Governments.

The paper discusses the role of industrial estates and industrial areas in policies of industrial development, industrial decentralization and regional development, urban and regional planning etc.

The paper was prepared by the Secretariat on the basis of a large number of studies and reports issued by the United Nations.

Duration: Initiated in December 1966; to be completed in February 1967.

Estimated cost and source of funds: Authorized CID budget.

IV.A.10 CID project: Industrial Extension Services for Small-Scale Industries

Authority: CID work programme.

Description: A paper prepared for submission to the Seminar on Small-Scale Industry in Latin America to serve as a basis for discussion. It is intended to assist national authorities in charge of small industry development, small industry service institutes and industrial extension centres, as well as technical assistance experts in establishing, operating and managing servicing facilities for small-scale industries.

It contains a description of the scope of industrial extension services, an analysis of extension policies and a discussion of institutions and methods for industrial extension services, of sponsorship and management of the facilities and of training of extension workers.

This is one in a series of projects on promotion of small-scale industry.

Prepared by a senior technical adviser of CID.

Duration: June to August 1966.

Estimated cost and source of funds: Authorized CID budget.

IV.A.11 CID project: Promotion of Small-Scale Industry in the Developing Countries

Authority: CID work programme.

Description: A collection of studies prepared during the past few years and presented in the form of a United Nations sales publication.

The study is designed to assist national authorities in charge of small industry development, technical assistance experts etc. in establishing and carrying out comprehensive policies and programmes for the development of small-scale industries.

The publication will include papers on definition of small-scale industry, role of small-scale industry, pre-investment studies, industrial extension facilities, industrial estates etc. It is nearly completed and will be published early in 1967.

The studies were prepared by staff of CID, technical advisers and consultants.

Duration: Initiated in June 1966; to be completed in March 1967.

Estimated cost and source of funds: Authorized CID budget; publications programme budget.

IV.A.12 CID project: Technical Co-operation for the Development of Small-scale Industry

Authority: Recommendation of the Committee for Industrial Development, fourth session (E/3869, para. 46).

Description: A publication designed to facilitate the formulation of technical co-operation projects in the field of small-scale industry.

It describes briefly the organization of technical co-operation and the procedures for obtaining assistance from the United Nations. It outlines, on the basis of experience gained in the past few years, the types of projects and the types of assistance which may be made available for the development of small-scale industry. A number of typical job descriptions for expert missions, and outlines of requests for assistance from the UNDP (Special Fund), derived from actual practice, are presented in annexes.

The publication is based on several years' experience in servicing technical assistance and Special Fund projects in the field of small-scale industry, and in carrying out general research work. It is expected to be a most important tool for undertaking further technical co-operation projects in the field of small-scale industry, including industrial estates.

The publication was prepared by CID staff.

Duration: August to September 1966.

Estimated cost and source of funds: Authorized CID budget and publications programme budget.

ILO projects

IV.A.13 The ILO organized in co-operation with the Government of Czechoslovakia an Interregional Seminar on Programmes and Policies for Small-Scale Industry within the Framework of Over-all Economic Development Planning. The Seminar broke new ground in two ways. It was the first to be held under United Nations auspices to examine the specific measures adopted in eastern European countries to integrate the smaller industrial undertakings into their over-all economic planning procedures.

Secondly, it brought together high-level government officials, drawn from the central planning organs of their countries as well as from the departments and institutions responsible for implementing small-scale industry development policies and programmes. Subjects under review at the Seminar included (a) planning techniques at the macro-economic and micro-economic levels in the interests of small-scale industrialization; (b) the organization of producers co-operatives as a tool for development; (c) analysis of the functions of managers and entrepreneurs in small undertakings in both socialist and developing countries; (d) a comparison between training programmes for managers in small undertakings organized in Czechoslovakia and by international agencies, including vocational training schemes for small industries; (e) financing and financial management in small enterprises; (f) the design and selection of technologies for small undertakings; (g) social policies for small-scale industrialization, and (h) the development of handicraft production having regard to developing countries in different stages of economic growth.

The Seminar was successful in that it demonstrated the important role of the smaller undertaking in a socialist economy, including the ability of small, flexible manufacturing units to meet the needs of various markets in both socialist and developing countries in terms of the speed, quality and variety of products and services provided. The special advantages of smaller enterprises in the present circumstances of the developing countries, including their importance as a vehicle of growth (better use of available capital and managerial skills; outlet for latent entrepreneurial initiatives; employment creation; closer identification of output to capacity; the size and structure of markets; contribution to industrial development in provincial towns and villages etc.) were particularly examined and stressed in view of recent trends in economic policy in eastern European countries to decentralize management of industrial enterprises and to encourage competition between manufacturing units.

IV.A.14

The ILO co-operated in three symposia on industrialization organized in 1966 by, or in association with, the Centre for Industrial Development. Papers prepared for these three meetings included "ILO Activities relating to the Development of Small-Scale and Handicraft Industries in Africa, 1960-65" (prepared for the United Nations Symposium on Industrialization in Africa, Cairo, January-February 1966); "The Role of Small Enterprises

in the Industrialization of the Arab Countries" (prepared for the Conference on Industrialization in Arab Countries, Kuwait, March 1966), and "The Role of Small Manufacturing Enterprises in the Balanced Economic and Social Development of Latin America" (prepared for a United Nations Latin American Symposium on Industrial Development, Santiago, March 1966).

IV.A.15 ECAFE project: Working Party on Small-Scale Industries
(Eighth Session)

Description: The eighth session of the Working Party on Small-Scale Industries was held in Manila from 3 to 9 June 1966.

The Working Party reviewed the progress and problems of development of small-scale industries with particular reference to specific measures taken in the countries regarding government policies and programmes and the establishment of central development agencies. It was observed that small-scale industries had made remarkable progress during recent years in almost all countries of the region thanks to the increasing attention paid by the Governments to the promotion of such industries. Many countries of the region had evolved special policies and programmes for assistance to existing small-scale industries and the promotion of new enterprises. Increased budgetary appropriations had also been made by Governments for small-industry development, the establishment of central development agencies and the provision of the requisite services and facilities for its promotion. In addition, several promotional measures had been taken to strengthen this sector of industry.

The Working Party observed that it was essential for countries interested in developing small-scale industries to devise a development policy properly integrated with the over-all industrial development of the country. However, in evolving a proper programme for their development, certain special measures of assistance and support should be ensured for the specific purpose of helping them to overcome their handicaps within the shortest time possible. As each country had to devise its own set of rules, there appeared to be no set of universal rules that all developing countries might follow in this regard. The Working Party accordingly recommended that the secretariat should collect, compile and circulate among the developing countries inventories of all policies and measures adopted by different countries in this regard. The secretariat is now working on such an inventory.

IV.A.16

CID project: Seminar on Small-Scale Industry in Latin America, Quito, Ecuador, 28 November to 5 December 1966. Organized Jointly by ECLA, CID and BTAO.

Authority:

ECLA and CID work programmes, regular programme of technical assistance.

Description:

The purpose of the Seminar was to review the existing situation of small-scale industry in Latin American countries, the problems faced by this sector and its future prospects within the process of industrial development and the scope for international co-operation in this field.

CID, BTAO, ECAFE and ECA have organized seminars on small-scale industries and industrial estates in Asia and the Far East and Africa, respectively, and CID and BTAO have organized consultative groups on industrial estates and areas for European and other countries, and Arab countries of the Middle East, respectively. The Seminar on Small-Scale Industry in Latin America was the first regional meeting on the subject organized for Latin America.

The agenda of the Seminar covered: the contribution of small-scale industry to the development of Latin America; technical services and assistance for the development of small-scale industry; financing for the development of small-scale industry, and regional and international co-operation in the field of small-scale industry.

The Seminar was organized jointly by ECLA, CID and BTAO. Papers were prepared by the staff of ECLA, the staff and technical advisers of CID, consultants and country participants. A senior staff member of ECLA served as the Director of the Seminar, and senior staff members of ECLA and CID as technical secretaries. The report of the Seminar and selected papers will be published by the United Nations in 1967.

The following papers were submitted by CID:

"The Definition of Small-scale Industry"

"The Role of Small-scale Industry in Over-all Industrial Development Strategy" by a consultant

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"Development Possibilities for Small-scale Industry in Specific Fields of Industrial Activity" by a consultant

"Stimulation of Entrepreneurship and Assistance to Small Industrialists at the Pre-investment Stage"

"Industrial Extension Services for Small-scale Industries"

"The Role of Industrial Estates in Policies and Programmes for the Development of Small-scale Industry"

"Types of Industrial Estates"

"Pre-project Planning for Industrial Estates", by a consultant

"Industrial Estate Plans and Projects in Latin American countries"

"Technical Co-operation for the Development of Small-scale Industry"

The ILO contributed a paper on "The Role of Small Manufacturing Enterprises in the Balanced Economic and Social Development of Latin America"

Duration:

Active preparations for the Seminar began in January 1966. The Seminar was held from 28 November to 5 December 1966.

Estimated cost and source of funds:

\$25,500; financed from the regular programme of technical assistance.

ILO projects.

IV.A.17

In view of the important place that the promotion of the household manufacturing enterprises (handicraft and cottage industries) occupies in ILO technical co-operation programme, a study was made of the way in which such projects have been executed since the inception, in 1949, of the Expanded Programme of Technical Assistance, in particular to determine how far the objectives of such projects were achieved. This evaluation exercise has indicated that new methodological approaches have to be designed to make this programme more effective. To this end, a research worker studied in six Asian countries, each having a substantial handicraft sector, government policies and programmes in an attempt to determine the role of these undertakings under various conditions of economic growth. The study is being continued.

IV.A.18

By the end of 1966, the ILO had been designated by the United Nations Development Programme (Special Fund) as Executing Agency for ten projects in the field of small-scale industries and for five projects which combined management training for larger enterprises with promotional activities for smaller manufacturing establishments. These projects, which are designed to assist Governments in developing institutional arrangements for small-enterprises promotion through an integrated system of techno-economic research, technical and managerial training, and extension and consulting services, are operative or are scheduled to commence operations shortly in the following countries: Ceylon, Chile, Israel, Jamaica, Morocco, Panama, Republic of Korea, Singapore, Thailand and the United Arab Republic: projects combining training of professional managers with services for small industry promotion are being implemented in Algeria, China, Ethiopia, Kenya and Uganda. In January 1967, the UNDP (Special Fund) will approve an additional small-industry project in Greece, the first of this kind to be established in Europe and for which the ILO will also act as the Executing Agency. Being composite projects, technical co-operation activities in this area cover a wide variety of questions related to small-scale industrialization, including advice to the Governments concerned on public policies for the promotion of small manufacturing enterprises; measures to modernize equipment and processes; upgrading of managerial and labour skills; improved utilization of raw material; assistance in the establishment of industrial estates, co-operative and other arrangements for interform co-operation, and credits and financial assistance. In the meantime, small industry projects implemented by the ILO under the UNDP (Expanded Programme) continue to increase. In all, the programme in the field of small industry to be implemented in 1967 will involve some thirty projects requiring the services of a total of 118 experts; countries where the ILO has been operating during 1966 include Afghanistan, Algeria, Bolivia, Cameroon, Ceylon, China, Ecuador, Grenada, Haiti, India, Israel, Jamaica, Jordan, Laos, Lebanon, Lybia, Mauritania, Morocco, Niger, Nigeria, Panama, Republic of Korea, Senegal, Sierra Leone, Singapore, Syrian Arab Republic, Tanzania, Thailand, United Arab Republic. Provision has also been made for having advisers in small industry attached to a number of ILO regional offices as part of the decentralization of ILO activities on a geographical basis currently in

progress and which is likely to have the effect of further accelerating and improving the quality of the technical co-operation programme. By way of example, detailed project outlines are included on a number of the most important composite projects implemented under the auspice of the United Nations Development Programme (Special Fund).

IV.A.19

Algeria. The aim of the project to establish a National Institute of Productivity and Industrial Development in Algiers, approved by the UNDP (SF) in 1966, is to train, promote and develop managers at all levels as required by Algerian industry including proprietary managers of small enterprises and to assist pre-industrial crafts in their conversion into small undertakings operating along factory lines. The Institute will also assist in the establishment, organization and development of professional bodies of entrepreneurs and managers and co-operative associations, for the purpose of introducing new techniques in business administration as well as in sales promotion and development, and in the organization and centralization of purchases. In all fields of national economic activity, the Institute will concentrate on promoting and increasing productivity and, after analysis and diagnosis of the actual situation, will recommend means to ensure increased efficiency for existing undertakings through improvement in the utilization of human and physical resources at their disposal or the adoption of new methods of production and operation. The project will provide expert services in the fields of artisan economy and co-operatives, artisan development methodology, textile and leather crafts and a number of short-term advisers; eighteen fellowships will be provided by the Special Fund for the experts' counterparts, and equipment in the amount of \$125,000. The total Special Fund contribution is \$1.7 million and the Government's contribution will be in the region of \$5.7 million.

IV.A.20

Carlon. The aim of the project to establish a Small-Industry Service Institute at Velona, approved by UNDP (SF) in 1962, is to provide facilities and services to small industries which they need for their development and growth. These facilities include research in techno-economical questions

including the identification of market opportunities, training in technical and managerial skills, and a variety of consulting and advisory services which are made available to small entrepreneurs, managers of industrial co-operatives and master artisans; the Institute is also co-operating with government departments concerned with the development of the small-industry sector. The Institute comprises four sections for respectively, (a) techno-economic studies and services, (b) technical investigation, testing and experimentation, (c) civil engineering and (d) training and extension. It maintains close working relations with the Ceylon Institution of Scientific and Industry Research (CISIR) in all matters of applied technology in small undertakings. Nine international experts have so far been appointed, and fellowships have been granted for ten counterparts attached to the experts. The UNDP (SF) allocated \$1 million including an amount of \$182,500 for equipment when the Government contributed \$1.3 million. Due to various reasons there have been difficulties in the implementation of the project and progress has been much slower than originally foreseen. Changes are currently being made in the organizational set-up of the SISI and a re-emphasis is being given to the operational programme of the Institute towards assistance to small-scale rather than handicraft industries.

IV.A.21.

Chile. The aim of the project to strengthen and expand the Department of Small Industries of the Servicio de Cooperación Técnica, approved by UNDP (SF) in 1966, is to promote the development of small and medium-scale industries and to improve the services rendered to them. In particular, the Department will be organized to provide services for:

(a) Increasing the productivity and efficiency of small industrial establishments, improving the quality of their products and encouraging the upgrading of their personnel;

(b) Promoting the establishment of new small industries, in particular for manufacturing selected goods which are now imported, and to satisfy the growing demand for goods and services which are creating new employment opportunities;

(c) Strengthening the economic position of the small entrepreneur through the promotion of co-operatives and associations, and

(d) Devising policies for the decentralization of industrial enterprises in order to provide gainful occupations for unskilled rural workers who are unemployed; in this connexion, feasibility and market studies will be undertaken.

In order to give practical shape to the above objectives, especially when market studies have located profitable new industrial possibilities, the Department will prepare model schemes for the size and location of plants. This work will include the preparation of detailed engineering designs of small factories and the provision of advice and recommendations on financing such projects to prospective entrepreneurs. In this work, the Department will collaborate with private consulting engineering firms. The UNDP (SF) will provide expert services in the following specialized fields: industrial economics; chemical, mechanical and metallurgical engineering; marketing; co-operatives and industrial estates; industrial design; leather, and short-term consultants. Ten fellowships of one year's duration will be made available to permit certain of the counterpart staff to study abroad. In addition, equipment for metallurgical and quality control laboratories as well as for the drawing offices in the regional centres, vehicles, publications and audio-visual equipment will be provided. The UNDP (SF) allocation will be \$1.4 million whereas the Government will contribute \$4.5 million in land, buildings, salaries of personnel, locally available equipment and operating expenses.

IV.A.22

Israel. The aims of the project to establish a Small-Industry Advisory Service in Tel Aviv, approved by UNDP (SF) in 1965, is to promote the development and growth of small industries through technological investigation, the provision of consulting and advisory services, and demonstration and training in technical and managerial skills. It will include the following units:

(a)(a) A technical investigation service to identify problems which limit the rationalization, mechanization and development of small industries as a preliminary to suggesting ways and means of overcoming such problems; in this aspect of its

work, the SIAS will establish close and systematic contacts with existing institutes for applied and technological research in the country. It will develop prototype equipment for the engineering and wood-working industries and adapt existing equipment to the needs of small industry. Demonstration under operational conditions will be included;

(b) A consulting and advisory service for the purpose of manufacturing operations, raising productivity and quality of products, and creating better working conditions for the engaged labour force. This service will also assist public agencies in the administration of loan and credit schemes and of programmes involving the resettlement and concentration of scattered small workshops operating in unsuitable premises in industrial estates. In collaboration with the Israel Institute of Productivity, it will arrange courses in management of small industry, accounting, costing of products and improvements in productivity;

d
(c) A demonstration and training service which will arrange appreciation, familiarization and skill upgrading courses for managers, supervisors and foremen of small-scale industrial plants. This service will have at its disposal shops for machine tool and die-making, welding and sheet metal-working, heat treatment and electroplating, and woodwork in order to provide demonstration and training for entrepreneurs, managers and foremen.

The UNDP (SF) will provide expert services, four fellowships of twelve months' duration each, and equipment and supplies in the amount of \$152,000; its total allocation will amount to approximately \$500,000, whereas the government contribution will be in the region of \$480,000.

IV.A.23

Marrakech. The purpose of the project to establish the Institute for Instructor Training for Leather and Textile Workers, approved by UNDP (SF) in 1962 in Fez, is to train instructional, technical and managerial staff for private enterprises and for the apprenticeship centres and government production units in both leather and textile work which the Government plans to establish in different parts of the country. The Institute comprises two units, a Textile Centre and a Leather Centre. Each Centre is composed of

three sections, for technical instruction and training, for technical studies and research concerning new products and designs, and for documentation, library and audio-visual services, respectively. In addition, two sections for management and economic studies and market surveys, and another for co-operative training and education are included in the Textile Centre but are rendering services to the Leather Centre as well. The training programme of the Institute includes (a) courses for leather and textiles instructors (men as well as women) with a duration of three years; (b) a nine-month course for technical staff, including the training of technicians for maintenance and installation of production equipment; (c) a nine-month course for instructors and advisers in co-operative organization and management of textile and leather units, and (d) a one-month skill upgrading and information course for directors and managers of co-operative organizations. The average number of trainees enrolled in these courses is about 100 persons a year. The equipment, largely contributed by UNDP (SF), consists of a model tannery and shoe-making and fancy leather goods workshop; testing laboratories for tanning and for textile finishing and dyeing and a complete processing plant for wool washing and for wool spinning, weaving, finishing and dyeing. The Institute is further equipped with a model apprenticeship training centre in both trades in which trainees have an opportunity to receive practical in-plant training. UNDP (SF) allocation to the project is \$1,035,000 whereas the government contribution is \$1,537,000 in buildings, equipment and personnel services.

After a slow start, the project is now progressing well. Gradually, various difficulties of an administrative and technical nature are being solved; more counterpart staff is being assigned to work in conjunction with the international experts. Also, the Institute is beginning to attract a higher level of trainees as compared with those who participated in the first training courses. Private industry is becoming increasingly interested in the Institute and a number of employers who are members of the Advisory Board of the Institute have contributed textile equipment in order to facilitate the training of technicians who will be familiar with the operation of machinery installed in the large weaving mills in the country.

IV.A.24

Panama. The purpose of the project to establish a Service for National Crafts and Small Industries (SENAPI), approved by UNDP (SF) in 1966, is to promote the establishment, development and growth of small industries through (a) technical studies pertaining to design, production and marketing, (b) extension services dealing, inter alia, with credit facilities besides technical and managerial questions and (c) training of technical personnel. The SENAPI will be located in Chitre and will develop its activities within the framework of the existing Industrial Development and Productivity Centre; regional demonstration centres will be established in various parts of the country. Studies will be made to determine the optimum utilization of local raw materials, the type and quality of articles to be produced, production methods and techniques, and marketing. Emphasis will be placed on leather, ceramics, vegetable fibres, wood, food conservation and dairy products industries. The training activities will consist of short intensive courses for workshop owners, managers, directors, supervisors, instructors and employed workers. These courses will be practical in nature and will be organized on an ad hoc basis, adjusted to the needs of particular groups of trainees. For the implementation of the project, the UNDP (SF) will provide expert services in industrial engineering, management accounting, marketing, crafts and co-operatives, product design, ceramics, tannery, leather, vegetable fibres, wood-working and food conservation; ten fellowships each of six months' duration, to enable the national counterparts to pursue further studies and gain experience abroad, and a certain amount of workshop equipment and supplies for the Institute and its demonstration centres. The Government, i.e. the Ministry of Agriculture, Commerce and Industry, will purchase the land and construct the building premises for SENAPI and will provide the necessary equipment and supplies to supplement that provided by the UNDP (SF). In addition, it will hire the necessary technical and administrative staff, cover the running costs of the scheme, and award monthly stipends to trainees. The UNDP (SF) allocation is about \$900,000 and the Government's contribution approximately \$800,000.

IV.A.25

Republic of Korea. The aim of the project to establish the Extension Services Department of the Medium-Industry Bank in Seoul, approved by UNDP (SF) in 1966, is to provide managerial and technical consulting services for the promotion of small and medium-scale manufacturing enterprises in the country. To achieve this purpose, the Extension Services Department will assist smaller enterprises in the following fields:

- (a) Management development through the introduction of appropriate organizational, planning and control practices to enable organizations to improve their current operations and to facilitate their further development and growth;
- (b) Industrial engineering, including improvement of methods, plant layout, materials handling, production planning and control, and quality control as required by existing industries and to promote their development;
- (c) Cost accounting through the introduction of appropriate techniques, including costing, budget control, cost analysis and other methods;
- (d) Production engineering covering the development and introduction of improved production aids such as jigs and fixtures, preventive maintenance, engineering design, simplified manufacturing techniques, and having due regard to plant safety, selection of equipment and development of simple tooling;
- (e) Manufacturing technologies for selected industries, providing for improvement of existing manufacturing practices and, where appropriate, the introduction of modern technologies to facilitate the development of these industries;
- (f) Marketing through the introduction of appropriate practices, including market research, sales promotion, marketing organization, sales distribution and packaging design to secure increased market scope for industrial products, and

- (g) Product development, including the design of new products, improvements to existing designs, examination of proposals for product diversification, and assistance in negotiating technical co-operation arrangements, all designed to assist in the further growth of the industries included in the small and medium-scale sector.

The Extension Service Department will provide essentially an in-plant service and also help enterprises to increase their efficiency and to accelerate their growth. Individual small firms, which are found to possess potential for development, but whose further growth depends on the availability of finance, will be referred to the appropriate department of the Medium-Industry Bank for investigation as to the provision of loans. In addition to its own extension and consulting service, the Department will arrange, if and when appropriate, to utilize the services and facilities of other organizations in Korea for the training of industrial personnel at management and supervisory levels and so avoid duplication of resources. The UNDP/SF will provide expert services, fellowships and equipment to a total amount of \$700,000 whereas the Government's contribution will be about \$500,000.

IV.A.26

Singapore. The purpose of the project to establish the Light Industries Service Unit, approved by UNDP (SF) in 1963, is to render services to private entrepreneurs in matters of research, training and extension so as to assist them in the establishment and operation of light industries operating on a small scale, including handicraft establishment. The Unit which is organized as an affiliated body of the Economic Development Board of the Government of Singapore, comprises (a) an extension service section, (b) a section for economic investigation, planning and development, and (c) a section for training and demonstration. It maintains close working relations with the Industrial Research Unit which also comes under the control of the Economic Development Board and which is being developed so as to become the centre of technological progress to Singapore's manufacturing industries. The main office of the Unit is installed in the premises of the Singapore Polytechnic but it maintains workshops in a separate building elsewhere in the city. Its location near the Singapore Polytechnic will enable the Unit to economize on various services, such as library services and such technical staff resources as may be available in the Polytechnic for consultation with specialists of the Unit. National

counterparts have been assigned to the Unit in sufficient number. The results obtained so far may be considered as highly satisfactory and an extension of the project beyond its original cut-off date in 1967 for the purpose of further expanding and implementing activities is under active consideration. The total UNDP (SF) allocation is approximately \$700,000, while the government contribution amounts to approximately \$860,000.

IV.A.27

Thailand. The purpose of the project to establish the Small Industry Service Institute in Bangkok, approved by UNDP (SF) in 1965 for a period of five years, is to promote the development, modernization and growth of new and existing small-scale industries through the provision of economic studies and market research services, product and process design and testing services, technical and managerial training and manufacturing services and extension and advisory services. Initially, the Institute will concentrate its activities in the greater Bangkok area and will emphasize its services to light engineering and textile industries, operating on a small-scale. It will be established within the Department of Industrial Promotion of the Ministry of Industry; it will maintain the closest working relations with the Technological Research Institute and the Thailand Management Development and Productivity Centre in particular, as well as with other institutions in the country dealing with questions of industrial development. The Institute will consist of the following five divisions:

- (a) Economic Studies and Information Division, which will undertake a systematic analysis of the problems confronting new and existing small establishments or groups of establishments; will carry out market surveys and studies related to certain industries and products; will assess the economic viability of small industries; will collect and disseminate information within the country and from other countries on all aspects of small industry which will be of help to entrepreneurs who wish to establish new industries or develop existing ones. It will also maintain a library of publications, films and audio-visual aids to serve the other divisions of the Institute and the small-enterprise community;

- (b) Design and Testing Division, which will operate a design office for the development of new products or processes, and dies, jigs, tools and fixtures required for the same. The staff of this Division will work in close collaboration with the technology experts in the other divisions during the design and testing stages. Efforts will also be made to adapt existing equipment or develop prototypes to meet the specific needs of small industry;
- (c) Workshop Division, which will operate a small model foundry and pattern shop, a machine shop and tool room, a forging and welding shop and an electroplating shop. The purpose of these workshops is to provide training to upgrade skills of owner-managers of small enterprises, entrepreneurs, foremen and skilled workers in production techniques and production efficiency. Keeping training and product development objectives in mind, the workshop will make available its equipment and personnel for actual production or processing of goods being manufactured by the various small industries, to the extent necessary and feasible;
- (d) Textile Division, which will render training to technicians and managers of small textile undertakings in improved methods of production of fabric designs, where appropriate. It will undertake the establishment of a textile testing laboratory and will also render consulting services to both cotton and silk textile manufacturers;
- (e) Extension and Training Division, which will assist in improving and modernizing present production techniques and processes of small industries by providing a proper channel of communication between the Institute and the industries concerned in rendering advisory and consulting services both at the Institute and on the shop-floor. It will also be responsible for arranging training courses on all aspects of management for small business, for the entrepreneur, the owner-manager, the technicians and the workers wherever and whenever such

classroom training has to be undertaken or shop-floor training co-ordinated. In the performance of these tasks this Division in particular will take advantage of the personnel and facilities of the Thailand Management Development and Productivity Centre and the Technological Research Centre.

The UNDP (SF) is providing expert services, fellowships and equipment in the amount of \$125,000. The total UNDP (SF) contribution amounts to approximately \$900,000, whereas the Government's contribution will amount to approximately \$1.3 million. The project started operations only recently.

IV.A.28

United Arab Republic. The purpose of the project to establish an Institute of Small Industries project in Cairo, which was approved by the UNDP (SF) in 1963, is to strengthen and expand the operation of the Egyptian Organization for Co-operative Production and Small Industries (CPC), more in particular to render research, advisory and training services to artisans and workers organized into industrial co-operative organizations. The Institute comprises five sections for (a) technical investigation and experimentation; (b) economic investigation, including market surveys and feasibility studies; (c) training, demonstration and advisory services for instructors employed in Government-sponsored training-cum-production centres in a variety of manufacturing areas; (d) an information section, and (e) an industrial workshop section with a number of production-cum-technical training units for textiles, including vegetable-fibre processing, carpentry, bamboo work, ceramics and pottery and traditional artistic handicrafts. These workshops provide the technical base for the training, demonstration and advisory services, mentioned under (c) above, while a fifth workshop for the light engineering trades and for the development and manufacture of prototype equipment suitable for smaller manufacturing enterprises in the UAR will be added later on at the expense of the Government. The training courses given in the Institute vary from one to six months, according to the subject. Shorter in-plant training courses are also given by the experts and their counterparts. An important part of the work of the international team and their counterparts relates to the provision of in-plant consulting services in order to solve technical, managerial and operational problems encountered in

co-operative industrial. Research, technical and marketing field surveys and investigations have been carried out to enter the production of the ceramic industry, carpentry, furniture manufacture, light engineering trades and basket weaving centres. So far the services to the co-operative enterprises are being provided free of charge. The UNDP (SF) allocation amounts to \$28,100, whereas the Government contributes the equivalent of \$877,100 in services and facilities; UNDP (SF) provided workshop, audio-visual and transport equipment to the amount of \$1,000. Because of administrative and other difficulties, including a lack of competent counterpart staff, the development of the Institute took more time than originally foreseen and it has therefore been agreed to extend the project to September 1967.

IV.A.29

Uganda. The purpose of the project to establish a management Training and Advisory Centre in Kampala, approved by UNDP (SF) in 1966, is to prepare Ugandan personnel for managerial and supervisory posts, to provide existing and prospective entrepreneurs with advisory services and technical training and to assist in improving the organization and operation of all enterprises irrespective of scale of the undertaking. More in particular the Centre will carry out the following functions:

- (a) Assist government departments and public institutions with advisory and training services to be given to their personnel, such as industry officers, trade development officers, community development officers etc., the staff of the Uganda Development Corporation etc., concerned with the promotion and development of industry and trade, particularly with small enterprises and the promotion of indigenous entrepreneurship;
- (b) Assist industry and other economic sectors in introducing and/or improving management practices, techniques and methods, including public services and utilities with a view to raising their productivity;
- (c) Prepare Ugandans for managerial, functional and supervisory posts in existing and new industries and business enterprises;

- (d) Help Ugandans to become entrepreneurs, by providing them with advisory services and instruction in simple management practices and particularly management accounting and marketing, and by giving them technological guidance and practical demonstrations;
- (e) Raise the standard of skill of workers employed in industry through accelerated training, upgrading, in-plant training.

To implement these objectives, the Centre will concentrate on three types of functions: advisory services, training, and collection and dissemination of information and documentation. The advisory and training services will be given to enterprises and individuals at the level appropriate to the conditions and the needs of industry and of the local entrepreneurs and prospective entrepreneurs; these services cover the fields of industrial engineering, management accounting and marketing and sales. Training will be given both within the Centre and on the job; a central workshop will be provided as a pilot demonstration, development and training centre consisting of four units covering metal, electrical and automotive engineering, and wood products processing. In order to assist small industrialists and entrepreneurs, located in areas outside Kampala, a mobile workshop-cum-training and extension unit for a few simple basic trades will also be provided. The UNDP (SF) has allocated approximately \$1.1 million for expert services, fellowships and equipment, whereas the Government is contributing \$700,000 towards the establishment and maintenance of the Centre during its initial stage.

IV.A.30

ECA project: Technical Assistance to the Countries of West Africa on the Establishment of Small-Scale Industries

A three-man industry mission consisting of the Regional Adviser on Small Industries and two other staff members visited the countries of the West African Subregion during the period from March to June 1966 to discuss and identify industrial projects, both small and medium scale, which each country could establish, and to advise on small-industry development programmes and policies.

IV.A.31

ECA project: Small-scale industries in Ethiopia

A feasibility study was conducted in 1966 on a scale of small-scale industries, particularly small holdings and cottage industries, at the request of the Government of Ethiopia, to make detailed planning studies for a number of small industries throughout the country.

IV.A.32

ECA project: Manufacture of textiles in Senegal

The Government of Senegal requested expert assistance in preparing a feasibility study on the manufacture of textiles on a decentralized basis. A staff member visited Senegal in September 1966 to make a detailed market survey and to assist in the preparation of this study.

IV.A.33

ECA project: Establishment of small industries in Ethiopia

Advice was given to the Ministry of Rural Community Development of Ethiopia in regard to hand-loom weaving in four centres, and a project prepared by ECA in consultation with Ethiopian officials was approved for financing by UNICEF. At the request of the Governor of Haraar Province in Ethiopia, the Regional Adviser on Small Industries visited Haraar and advised the authorities on industrial possibilities and measures for their early establishment.

IV.A.34

ECA project: Development of small industries in Eastern Nigeria

Assistance is being provided to the Industrial Development Centre in Eastern Nigeria, established under USAID and the Government of Eastern Nigeria, in the preparation of a programme for the development of textile industries on a decentralized basis and in their sponsorship of a Federal Organization for Small Industry Development.

IV.A.35

CID project.

United Nations experts assisted Governments in drawing up or implementing policies, programmes and promotion measures, or making institutional arrangements for the development of small-scale industries in Chile, Dahomey, Dominican Republic, Laos, Malaysia, Mauritania, Morocco, Rwanda, Senegal, Somali Republic, Sudan and Trinidad and Tobago.

IV.A.36

CID project.

United Nations experts carried out feasibility studies for the establishment of small-scale industries in Guyana, Iran and Trinidad and Tobago.

B. Modernization of Equipment and Processing

ILO projects.

IV.B.1

During this period, the ILO has directed its research programme towards the identification of appropriate technologies and to measures to improve technical co-operation activities in the field of small-scale and handicraft industries through improved project design. Studies on the level of technology in smaller enterprises with a view to facilitating the introduction of more advanced processes into industries where current processes of manufacture and operation are archaic and inefficient, are in line with trends all the world over which recognize that a too rapid transition from obsolete to advanced technology may not only impose on the individual firm a heavy capital charge (and, on the country, heavy expenditure of foreign currency) but may be not efficient either operationally in relation to market needs or on a basis of cost of the different factors of production. An information paper entitled "Appropriate Technologies for Small Industries in Developing Countries" has been produced and widely circulated among ILO experts working under the United Nations Development Programme (Special Fund and Expanded Programme) in small-scale and handicraft projects, in order to clarify some important issues in the technological field in connexion with the creation of employment through small-industry promotion.

IV.B.2.

To improve the ILO's technical co-operation programmes in this particular area, field studies are being made on new types of small-industry projects designed to serve small-industry complexes operating in certain limited regions in a country and whose resources will be measurable in quantitative terms. Such "quantitative growth projects" would attempt to measure through the application of cost-benefit analysis systems the practical achievements in technical co-operation work; they propose to compare the outputs obtained over a different period of time with selective inputs in terms of human (including technical and managerial skill formation), physical (including raising the level of applied technology in the enterprises through training and extension, credit and other services) and institutional resources (including co-operative and other means of interfirm co-operation to enable small enterprises to benefit from the economies of scale). In this way, a better understanding may be obtained of efforts made at the national level in co-operation with international agencies to develop the small-enterprise manufacturing sector.

IV.B.3. CID Project: Technologies Appropriate for Industry in the Developing Countries

Authority: CID work programme

Description: A paper submitted to the Advisory Committee on the Application of Science and Technology to Development at its 1966 session. The purpose of the paper was to recommend action by developed and developing countries and by the United Nations for evolving appropriate technologies, in particular, for small-scale industries.

The paper comprised a general introductory study which is to be followed by specific industry studies.

It contained a review of the work already carried out on the question of appropriate technologies, and recommendations for further work and for national and international action.

The study was prepared by a consultant.

Duration: January to February 1966.

Estimated cost and source of funds: Departmental budget.

IV.B.4 ILO Project: Mention has already been made under IV.B.1. of ILO's research activities in the field of appropriate technologies and preparation of a paper for circulation among ILO experts assigned to small industry projects entitled "Appropriate Technologies for Small Industries in Developing Countries.

IV.B.5 CID project: Preparatory work has been undertaken on the organization of an Interregional Symposium on Technical Services and Facilities for Small-Scale Industries to be held in Copenhagen during July 1967.

IV.B.6 **CID project:** United Nations experts are providing technical assistance to small-scale industrialists in the field of technology and engineering in Chile, Dominican Republic, India, Jamaica, Malaysia, Mauritania, Rwanda, Senegal and Trinidad and Tobago.

IV.B.7. **CID project:** Direct advisory services under the Programme of Special Industrial Services were extended by a senior technical adviser of CID to the Governments of Ghana, Nigeria and Turkey on problems relating to the operation of industrial establishments, in particular, small-scale industries.

C. Upgrading of Managerial and Labour Skills

A.C.1. ILO project: The ILO organized, under its Regular Programme, a Technical Expert Meeting on the Development of Managerial and Entrepreneurial Resources in Africa, which was held in Addis Ababa in December 1966. The meeting was attended by twenty-two specialists from as many African countries representing public and private sector enterprises, managerial and technical training institutions and government departments responsible for industrial development including the promotion of small manufacturing enterprises. The meeting considered a number of questions of small-scale industries, such as the role of the small enterprises in African economic development, specific problems in the promotion of this section, legal provisions to regulate and stimulate their growth, training facilities, financial assistance and general planning for small-scale industry. Particular attention was paid to problems surrounding the subject of skill formation for managerial personnel of small establishments. Training methods which came up for review included audio-visual aids such as radio and television programmes, training provided in proximity to the small entrepreneurs' own locations by means of mobile institutions, extension service training within the enterprises and classroom instruction at centralized small-industry development centres. It was generally felt that one of the greatest needs in the matter of small-enterprise promotion was to arouse among small entrepreneurs an interest in receiving training and to create an awareness of the benefit of skill formation for the efficient operation of their enterprises. To this end, audio-visual methods were considered to be particularly effective; also, successful extension activities, i.e., information and training at the level of the enterprises, could equally generate interest in, and a desire for, classroom instruction in centralized institutions for management development and small-industry promotion. As regards the former type of training, it was felt that extension and consulting services on the level of the shop-floor in general would be more effective than theoretical instruction by centralized institutions. The meeting also concluded that every effort should be made to persuade existing technical schools and vocational training centres to provide training facilities which were particularly oriented to the needs of existing and prospective small entrepreneurs.

IV.C.2 ECAFE project : Training for Small-Scale Industries

The Working Party on Small-Scale Industries (eighth session) noted the efforts being made by many Governments and industrial organization in the ECAFE region to improve the efficiency of small industries by imparting training at various levels. It felt, however, that there appeared to be certain areas and certain types of training which were perhaps not receiving adequate attention, especially in the training of owner-managers. The Working Party accordingly recommended that the ECAFE secretariat should, in consultation with other international organizations, investigate the possibility of establishing an Asian institute for management and consultancy training in small industries. As an inventory of training facilities, including training experts in the field of small industries, would be a very welcome aid to Governments in planning training programmes, the Working Party recommended that the secretariat might try to compile such an inventory and to give it adequate publicity.

IV.C.3 ILO project : ILO management development projects initiated under UNDP (SF) arrangements in China, Kenya, Sudan and Uganda all include features related to management in small enterprises; the latter three also attempt to promote African entrepreneurship. Two new projects, in Algeria and Jamaica, combine management development with a section for the promotion of small-scale and handicraft industries.

D. Improved Utilization of Raw Materials

No reports have been received for projects under this heading.

E. Establishment of Industrial Estates

IV.E.1. CID project: Industrial Estates : Policies, Plans and Progress - A Comparative Analysis of International Experience United Nations Publication (Sales No. 66.II.B.16)

Authority: CID work programme

Description: One in a series of publications on industrial estates, it is intended to disseminate information on industrial estate development based on an international comparative analysis.

It discusses objectives and policies, planning and organization, management and financing of industrial estates in a large number of countries of all regions.

The study was prepared by staff of CID on the basis of replies to a questionnaire on industrial estates and other relevant information.

Duration: The study was published in June 1966.

Estimated cost and source of funds: Publications programme budget.

IV.E.2 CID project: The Role of Industrial Estates, Areas and Zones in Providing an Industrial Base in Urban and Regional Development Plans

Authority: CID work programme

Description: A study to investigate the role of industrial estates, areas and zones to urban and regional policies and programmes - a field which has not so far been studied extensively in the literature on the subject. The study was submitted as a discussion paper to the Consultative Groups on Industrial Estates and Industrial Areas which met in Geneva and Beirut, and was used as a background document in the Inter-regional Seminar on Development Policies and Planning in Relation to Urbanisation, held in Pittsburgh.

The study covers industrial estates as subsystems of urban and regional planning and of industrial development programmes, the importance of land and urban infrastructure for industrial development, the contribution of industrial estates and areas to regional and urban development programmes.

The study was prepared by a consultant as part of the CID work programme in the field of industrial estates.

Duration: August-September 1966.

Estimated cost and source of funds: \$1,000; departmental consultants funds.

IV.E.3 CID project: Policies and Programmes for the Establishment of Industrial Estates.
See entry No. IV.A.9.

IV.E.4. CID project: Papers for Two Consultative Groups on Industrial Estates and Industrial Areas

"Industrial Estates Plans and Projects in Some European and other Countries" by CID

"The Role of Industrial Zones, Areas and Nuclei in Development Policies and Programmes, with Special Reference to the Promotion of Small-Scale Industries: The Experience of Italy," by a consultant

"The Role of Industrial Estates, Areas and Zones in Providing an Industrial Base in Urban and Regional Development Plans," by a consultant

"The Role of Industrial Estates in Policies and Programmes for the Development of Small-Scale Industries", by CID

"Types of Industrial Estates", by CID

"Pre-project Planning for Industrial Estates", by a consultant

"Services and Facilities for Small-Scale Industrial in Industrial Estates", by a consultant

"Public and Private Financing of Industrial Estate Projects and Stimulation of Private Projects by Government Authorities, with Special Reference to India's Experience", by a consultant

"United Nations Activities in the Field of Industrial Estates", by CID

"Research Parks in the United States: A Case Study from Colorado", by a consultant

Authority: CID work programme.

Description: Papers to serve as a basis for discussion for the two consultative groups. The subjects of the papers correspond to the main items of the agendas of the groups. Some of them and the reports of the groups will be published in 1967. The project forms the work

The project forms part of the work programme of the CID in the field of industrial estates.

The papers were prepared by CID staff and technical advisers and by consultants.

Duration: October 1965 to October 1966.

Estimated cost and source of funds: Authorized CID budget and departmental consultants fund.

IV.E.5 CID project: Industrial Estates Plans and Projects in Latin American Countries

Authority: CID work programme.

Description: Paper, submitted to the Seminar on Small-scale Industry in Latin America to review current developments in the field of industrial estates in Latin American countries.

The project forms part of the work programme of the CID in the field of industrial estates. The paper was prepared by CID staff.

It consists of a general survey of industrial estates, plans and projects and data for fifteen countries of Latin America. The paper will be published, together with the report of the Seminar and other material, in 1967.

Duration: August to September 1966

Estimated cost and source of funds: Authorized CID budget.

IV.E.6 CID project: Industrial Estates in Africa (United Nations Publication, Sales No. : 66.II.B.2.)

Authority: CID work programme and Seminar on Industrial Estates in the Region of the Economic Commission for Africa, Addis Ababa, December 1964.

Description: The second in a series of publications containing reports and papers of regional seminars on industrial estates.

The purpose of the study is to disseminate the findings, conclusions and recommendations of the Seminar and information on industrial estate development in African countries.

The publication contains the report of the Seminar, a report on planning, design and construction of industrial estates with particular reference to Africa, prepared by a consultant, and a survey of industrial estate plans and projects in African countries prepared by the Secretariat on the basis of country papers submitted to the Seminar and of replies of Governments to a questionnaire on industrial estates.

Duration: The study was published in February 1966.

Estimated cost and source of funds: Publications programme budget.

IV.E.7 CID project: Consultative Group on Industrial Estates and Industrial Areas in Certain European and other Countries in the Process of Industrialization, Geneva, 24 to 29 October 1966;
Consultative Group on Industrial Estates and Industrial Areas in Arab Countries of the Middle East, Beirut, 31 October to 5 November 1966.

Authority: CID work programme, Expanded Programme of Technical Assistance.

Description:

The meeting in Geneva brought together participants from Bulgaria, Cyprus, Greece, Hungary, Israel, Malta, Poland, Spain, Turkey and Yugoslavia, CID and ECE staff members, consultants and representatives of specialized and other agencies.

The meeting in Beirut brought together participants from Iraq, Jordan, Kuwait, Lebanon, Saudi Arabia and Syria, CID and UNESOB staff members, consultants and representatives of specialized and other agencies.

The purpose of both meetings was to discuss the role of different forms of industrial clusterings, especially industrial estates, in the development policies and programmes of the countries of the participants, with special reference to the promotion of small-scale industries, and the planning, organizational and financing problems involved. It was expected that each Group would encourage the use of industrial estates and areas as an instrument for promoting industrialization and influencing industrial location, help in setting standards for such projects in the light of regional conditions and needs, and stimulate international and regional co-operation, including technical assistance, in this field.

The Geneva meeting was the third, and the Beirut meeting the fourth, in a series of regional conferences on industrial estates organized by CID and BTAO with the co-operation of the secretariat of the regional commissions and offices.

The agendas of both meetings covered: a review of development in the fields of industrial estates and industrial areas; the role of estates and areas in development policies and programmes, with special reference to promotion of small-scale industries; planning, organisation and management, services and facilities, financing and international and regional co-operation.

The Consultative Groups were jointly organized by CID and BTAO. Papers were prepared by CID staff and consultants. A senior staff member of CID serviced as Director of both meetings, with the assistance of another CID staff member. The reports of the Groups and selected papers will be published by the United Nations in 1967.

Duration:

Active preparations for the Consultative Groups began in the autumn of 1965. The dates were, respectively, 24 to 29 October and 31 October to 5 November 1966.

Estimated cost and source of funds:

Geneva: \$6,300; Beirut: \$6,900; EPTA.

F. Co-operation and other Institutional Arrangements

IV.F.1. ILO project: In view of the important part played by co-operatives in the development of small-scale industry in many of the industrializing countries, it may be appropriate to mention here that after a first discussion in 1965, the International Labour Conference adopted in 1966 a Recommendation on the Role of Co-operatives in the Economic and Social Development of Developing Countries. It is the first time that the subject was discussed as an item on the Conference agenda and this is the first international instrument dealing with co-operative development. The instrument will serve as a guide to developing countries in the formulation of policies for co-operative development; it applies to all categories of co-operatives including processing co-operatives, handicrafts co-operatives, workers' productive co-operatives and housing co-operatives. In its reference to the "Objectives of Policy concerning Co-operatives", it states that the establishment and growth of co-operatives should be regarded as one of the important instruments for economic, social and cultural development as well as human advancement in developing countries.

IV.F.2. CID project: Government Purchase Schemes for Promotion of Small-Scale Industries

Authority: CID work programme.

Description: One in a series of studies on the promotion of small-scale industry, it is intended to provide guidelines for government action in establishing purchase schemes for the promotion of small-scale industries.

It is in the form of a comparative study of policies and practices in the United States and India.

The study was prepared by a consultant.

Duration: March to July 1966.

Estimated cost and source of funds: \$1,000; departmental consultants funds.

IV.F.3. CID project: Industrial Extension Services for Small-Scale Industries

See entry No. IV.A.10.

IV.F.4. ILO project: The International Institute of Labour Studies of the ILO organized jointly with the Afro-Asian Institute for Labour Studies and Co-operation a middle-level seminar on the role of co-operatives in economic and social development which has held at the Afro-Asian Institute in Tel Aviv from 16 to 18 May 1965 and was attended by twenty-three participants from twenty-one countries.

The ILL has provided technical assistance in co-operative organization to Haiti, Morocco and Saudi Arabia. Details of these projects are given below.

IV.F.5. Haiti

The present project, financed from the ILO's Rural Development Programme and EPTA, originated as a direct result of an ILO six-months' mission to Haiti in 1957. Its purpose is to raise the level of living of the rural population through the establishment of a number of co-operative centres of rural handicraft, and its scope covers the entire island. It includes all aspects of rural handicraft (wool, metals, masonry and agricultural economy).

In the implementation of the project there has been close collaboration between the ILO experts and those of other organizations (UNICEF, FAO, UNESCO, WHO). In 1965 a team of eight ILO experts was assigned to the project. During 1965 two additional centres were built, bringing the total to eight. The project was initiated in 1960 and is expected to be completed in its present form at the end of 1968.

IV.F.6. Morocco

The Government of Morocco requested the UNDP Special Fund to provide several experts for the purpose of handicraft training in all aspects of the textile and leather industries in a national institute at Fès. The execution of this project was entrusted to the ILO in 1963. A co-operative expert is included in the team for forty-eight man-months, to assist the institute in organizing courses in co-operative methods and practices, in order to enable participants leaving the institute to form themselves into co-operatives and thereby benefit from a more economical operation in their trades. The project embraces co-operative development and promotion among handicraft workers and teachers trained in the institute as well as those already established in workshops.

An expert on co-operative education and training was appointed to undertake the mission and to organise training courses within the framework of the institute and in close collaboration with other experts.

The project, financed under the UNDP Special Fund, started in 1963 and is expected to be completed at the end of 1967.

IV.F.7. Saudi Arabia

The ILO was requested to provide an expert on co-operative development to assist and advise the Government on the aspect of its community development programme relating to the establishment of co-operative organisations as a means of solving certain problems of rural development through group action. The purpose of the project, which is financed under EPTA, is to conduct a survey of the conditions of existing co-operative development; on the basis of the findings to prepare a programme outline for co-operative development and to assist in its implementations; to advise and assist the Government in the organisation of institutional arrangements for co-operative development, and to advise and assist in the training of personnel. The scope of the project covers the entire country. Action centres around the community development units which consist of an average of five to six villages per unit. All types of co-operatives are included in this development.

An expert was appointed to undertake the mission. With particular reference to industrial development the expert applied two methods of implementing the project: first, co-operative training and education programmes were arranged for the staff of the government administration and co-operative societies, and secondly, pilot projects were promoted. The operation of the Najadh Vocational Co-operative Society, which groups small tradesmen and skilled workers, is relevant to this section. Industrial development in the country is still in the early stages and therefore these small tradesmen and skilled workers still form the base of industrial activity. Here the expert has been helping the society to develop an industrial area with individual workshops and dwellings built around the society's central workshop and offices. Societies for the supply of electricity are also being assisted.

The project as a whole started in August 1963, but the vocational co-operative only started business in 1964.

In 1965 the Society strengthened and expanded its operations. Lands were purchased to develop residential and commercial areas and appropriate plans prepared. The project ends on 31 December 1966.

I.F.S. CID project:

A United Nations technical assistance project is under way to advise the Government of Thailand on the establishment of a marketing organisation and a programme of internal and export marketing of small-industry products.

G. Special Credit and Financial Facilities

IV.G.1. CID project: Hire-Purchase Schemes for the Promotion of Small-Scale Industries.

Authority: CID work programme.

Description: A study to provide guidelines for establishing hire-purchase schemes as a means of financing small-scale industries.

It contains a description, analysis and assessment of hire-purchase systems, especially of those in India. The study was prepared by a consultant.

This is to be one in a series of studies on the financing of small-scale industries. It will be submitted to a seminar on financing of small-scale industry planned for 1968.

Duration: March to June 1966.

Estimated cost and source of funds: \$1,000; departmental consultants funds.

IV.G.2 CID project: Technical assistance to financial institutions for small-scale and medium-sized industries is provided by United Nations experts in China, the Dominican Republic and Trinidad and Tobago.

H. Provision of Documentation and Information

IV.H.1. ILO project: For the purpose of exchange of information among ILO experts, assigned to technical co-operation projects in the field of small-scale and handicraft industries, and to provide guidance to field experts on issues of developmental methodology, a series of information papers for field staff is being published, including the following titles:

"ILO Activities relating to the Development of Small-Scale and Handicraft Industries";

"Appropriate Technologies for Small Industries in Developing Countries";

"Household and Small-Scale Metal Industries in Developing Countries and Measures for their Development";

"The 1960 International Labour Conference: References to Small-Scale Industries and Related Issues".

IV.H.2. ECAFE project: Small-Industry Bulletin for Asia and the Far East

The fourth issue of the above publication, the main objective of which is to promote exchange of information among the countries of the region in connexion with the development and modernization of small industries, has been compiled and is being printed for submission to the nineteenth session of the Committee on Industry and Natural Resources. The major theme of this issue is "Problems of Marketing and Selling Small-Industries Products".

Chapter V

TRAINING

A. Training for Engineers for Industry

V.A.1. CID project:

Report on Training of National Technical Personnel for Accelerated Industrialisation of the Developing Countries

Description:

Pursuant to General Assembly resolution 1824 (XVII) a report on the above subject (E/3901 and Add.1 and 2) was prepared by the Centre for Industrial Development in co-operation with the specialised agencies during the period from April 1964 to May 1965, and was presented to the Economic and Social Council at its thirty-seventh session. Subsequently the report was reviewed by the General Assembly at its twentieth session. The General Assembly, in further emphasizing the need to expand work in this area, adopted resolution 2090 (XX) which requested the Centre for Industrial Development to continue and expand such activities and requested the Secretary-General to report on proposals for further measures in this field for consideration by the Committee for Industrial Development at its seventh session, by the Economic and Social Council at its forty-third session and by the General Assembly at its twenty-second session. While the Centre for Industrial Development had the final responsibility for the preparation of the report, full use was made of the ACC Sub-Committee on Education and Training and of two intersecretariat working parties.

This report has been considered as the first comprehensive survey of the entire subject in question. Moreover, it provides basic recommendations for national and international action in the field of training of technical personnel for industrial development. As will be noted below, the Centre for Industrial Development has initiated some projects following the recommendations contained in the report.

V.A.2. CID project: Selected Country Case Studies on Manpower Development for Industrialization

Description:

This project is based on the Secretary-General's report on training mentioned above. Studies on the following countries have been completed in 1966: Argentina, Brazil, Bulgaria, Chile, El Salvador, Hungary, India, Japan, New Zealand, Peru, Philippines, Romania, Tanzania, Turkey, United Arab Republic, USSR, Yugoslavia, Zambia. The studies have been prepared at a total cost of \$18,000, financed from the consultancy funds available to the Centre and partly from the International Symposium funds. In each case, the study was prepared by an expert in the country in question. These studies are meant to collect data on different patterns of approach in developing skill-capability of the developing countries to sustain and promote industrialization. Ultimately, it is hoped to develop a meaningful policy goal for the Governments and recommendations regarding the appropriate institutional frameworks to plan and direct development skills in so far as industrialization is concerned.

V.A.3 CID project: Training Manuals

Description:

As a follow-up of its work on in-plant group training programmes for engineers (description of these training programmes is given in section C of the present chapter) the Centre for Industrial Development has undertaken a series of training manuals by industrial branches. The aim of such manuals is to facilitate tasks of organizing similar training programmes by the Governments, as well as the large industrial establishments, in the developing countries. The preparation of the iron and steel training manual was started in 1965 and will be completed in November 1967. The manual will be based on the accumulated experience of and the teaching material generated by the iron and steel in-plant training programmes being organized in the USSR by the Centre for Industrial Development. The manual will be finalized with the assistance of a consultant and the cost is expected to be approximately \$3,000. The preparation of a training manual in the textile industry was initiated in August 1966 and the first edition will be completed by April 1967. The manual is being prepared by a Polish expert at a cost of \$5,000 to be financed from the consultancy funds available to the Centre. It is planned to evaluate the training manual during the course

of conducting the in-plant training programme in the textile industry, which is being organized in Poland starting May 1967, and if necessary, to revise the manual as a result of the experiences gained from the training programme. Training manuals for other industries will be initiated in 1967.

V.A.4 WHO project: Chile - Training in Industrial Health and Safety

Description:

As Executing Agency for the UNDP, WHO is assisting the Institute of Occupational Health and Air Pollution, Santiago, in giving training in industrial health and safety for industrial medical officers, engineers and technicians. The Institute co-operates with the Catholic University and the School of Public Health of the University of Chile in these courses and in studies on air pollution involving meteorological investigations.

V.A.5 ECAFE project: Training in the Petroleum Industry

Authority:

ECAFE work programme.

Description:

The purpose of the project is to train technical personnel from countries of the region in various specialised phases of the petroleum industry. Training, which is given through the facilities, including teaching staff, provided by the National Iranian Oil Company of the Government of Iran, includes training in oilfield exploitation, refining, distribution and marketing, etc. Between 1963 and 1966, ninety-four candidates from thirteen countries of the region received training. In 1966, fourteen trainees were received from five countries.

Duration:

This project was started in 1963 and is being continued into 1967.

Estimated cost and source of funds:

ECAFE regular budget and technical assistance funds.

7.A.6. ECAFE project: Training and Research Centres in the Field of Electric Power

Authority:

Sub-Committee on Electric Power, Committee on Industry and Natural Resources, and the Commission.

Description:

The purpose of the project is to establish training and research centres in the field of electric power.

The ECAFE secretariat was associated in the preliminary studies and in the preparation of an application to the UNDP (Special Fund) for assistance in the establishment of a centre for training in the design of electrical plant and machinery in India. This application is now being considered by the UNDP. Assistance along these lines may be rendered to other countries, on request.

It was proposed to strengthen one or two existing training centres to serve as regional centres for training personnel of the electric supply industry from countries of the ECAFE region.

The project is related to projects on electric power development; the co-operation of the ILO may be sought.

Duration:

This project may continue for two or three years.

Estimated cost and source of funds:

Regular budget of ECAFE; co-operation of the UNDP may be required.

B. Management Training

V.B.1 CID project: Review of the Present Quantitative Management Techniques from the Point of View of Possible Application in Developing Countries

Description: Much work has been undertaken in the highly industrialized countries on the use of certain quantitative techniques to aid management decisions. It is considered desirable to review such applications and to assess whether their use could be extended to the industrial enterprises in the developing countries. The Centre for Industrial Development, with the assistance of experts from the Netherlands and Poland, has prepared in 1966 studies on the above subject. The aim of the studies is to aid in evolving a programme of work in which the Centre for Industrial Development could play a role in assisting the developing countries effectively to apply such methods. The papers will also serve as aids in planning for the interregional seminar on the subject planned for 1968. The studies were prepared at a cost of \$3,000, financed from the consultancy funds available to the Centre.

V.B.2 CID project: Selected Case Studies in Latin America on the Application of Quality Control Techniques

Description: Measuring the quality of any manufactured product is basic to standardisation and efficient operation of the industrial enterprise. The Centre for Industrial Development in 1966 prepared a series of case studies on the above subject. In particular studies were prepared for the following countries: Argentina, Chile, Mexico, Peru, Uruguay. This survey of application is regarded as essential for evolving a rational programme of work by the Centre for Industrial Development for assisting the developing countries in this field. Moreover, the paper will be used as a background document for the seminar on the subject proposed for 1968. The studies were prepared with the assistance of experts in each of the countries in question at a total cost of \$3,300, financed from the consultancy funds available to the Centre.

V.B.3 CID project: Industry Case Studies on Problems of Materials Handling and Management

Description:

It is considered important to review the effective application of modern materials management systems in the developing countries which can lead to considerable economies in production and operational costs and reduction of working capital needs. The Centre for Industrial Development prepared in 1966, five case studies on the above subject. These studies were prepared with the assistance of experts for selected industries in the following countries: Ceylon, India, Japan, Turkey, UAR. The studies are intended to provide guidelines for a programme of work in which the Centre for Industrial Development could play a role in assisting the developing countries in this field. The papers were prepared at a total cost of \$7,000 financed from the consultancy funds available to the Centre.

V.B.4 CID project: Managerial and Technical Requirements for Industrial Cost Accounting in Developing Countries.

Description:

In 1966 a study was prepared by an American expert under contract to the Centre for Industrial Development. The aim of this work is, in part, to lead to the formulation of effective training programmes in management accounting for persons working in industrial establishments of the developing countries. The study was prepared at a cost of \$350, financed from the consultancy funds available to the Centre.

V.B.5 CID project: Industrial Management Development Activities in the Developing Countries

Description:

The Centre for Industrial Development undertook two surveys in 1966. one entitled "Management Development for Industrial Development" reviews and evaluates management activities of various international organizations from the point of view of accelerating the industrialization of the developing countries. The other, entitled "Management Improvement in Developing Nations", surveys various industrial management activities provided to selected developing countries through bilateral technical assistance programmes. The purpose of

both these studies is to assist in evolving a programme of work for CID in order effectively to assist the developing countries in this field. The studies were prepared with the assistance of expert consultants at a total cost of \$1,600, financed from the consultancy funds available to the Centre.

V.B.6 CID project: Adaptation of Corporate Planning Practices to the Particular Needs of Industrial Enterprises in the Developing Countries

Description: The Centre for Industrial Development is giving serious attention to the above subject. In this connexion, it was felt useful to see what needs to be adapted and how it works. Consequently, in 1966 the Centre for Industrial Development, with the assistance of an American expert, prepared a paper on "Corporate Planning Practices in the Industrialised Countries". The expert also made field trips to a few developing countries in order to ascertain the on-the-spot needs. The total cost of the project was \$5,000, financed from the consultancy and travel funds available to the Centre.

V.B.7 CID project: Recommendations for Training and Management Requirements for Plant Engineering and Maintenance

Description: In 1966, the Centre for Industrial Development initiated the preparation of a series of research papers. The studies will contain a review of modern methods of maintenance and plant engineering in developed as well as developing countries. Such a review is considered essential in order to evolve a CID programme of work to assist the developing countries in this field. Case studies of Turkey in the metal working industry; the United States of America in the food, iron and steel, and pulp and paper industries, and India in the fertiliser industry were prepared in 1966. The papers were prepared by experts in the country in question at a total cost of \$5,000 financed from the consultancy funds available to the Centre.

V.B.8. CID project: Questionnaire on Industrial Management Development in Developing Countries

Description: The Centre for Industrial Development, in October 1966, initiated work on the design of questionnaires to be sent to the international and interregional organizations and to the various institutions such as schools centres and associations dealing with management training and research, located in the developed as well as in the developing countries. The objective of these questionnaires is to gather up-to-date information on the scope, aims and possibilities of present and future activities in industrial management development in regard to developing countries. A detailed study of this information will then be made for the purpose of correlating the needs of the developing countries in the field of management development with existing plans and facilities, and to suggest ways and means of eliminating possible duplication of effort and of creating additional training and research facilities. As a follow-up of this it is proposed to convene in Poland in late 1967 a meeting of experts (including representatives of the institutions to which the questionnaires were sent) to discuss and finalize the above-mentioned study. The estimated cost of the meeting is \$60,000 to be financed by the regular programme of technical assistance.

V.B.9 CID project: Interregional Seminar on the Use and Application of Quantitative Techniques by Management of Industrial Enterprises

Description: It is felt that, by simplifying quantitative management techniques and by generating adequate interest in these techniques, the management of industrial enterprises in the developing countries will be able to tackle problems of efficient allocation and utilization of their limited resources. The Centre for Industrial Development is discussing ways and means of organising a seminar for two weeks in the USSR beginning in August 1968. The purpose of the seminar is to bring about an awareness of the use of these techniques on the part of management of the industrial enterprises in the developing countries and to examine the manner in which they can be usefully adopted over a period of time. The estimated cost of the seminar is \$66,000.

V.B.10. CID project: Interregional Seminar on the Use and Application of Quality Control

Description

It is widely recognized that quality control techniques in management are important in solving many production problems, improving product quality, decreasing rejected production and salvage work, and reducing costs. The Centre for Industrial Development is discussing the possibilities of organising a seminar in Denmark for two weeks starting in May 1968. The purpose of the seminar is to assess whether such methods could be applied effectively in the industrial enterprises of developing countries, as well as to aid in evolving a programme of work in which the Centre for Industrial Development could play a role in assisting the developing countries in this field. The total estimated cost of holding the seminar is \$66,800.

V.B.11. CID project: Workshops for Top Management of Industry in Developing Countries

Description:

The Centre for Industrial Development is exploring ways and means of organising, in 1967, a series of ten-day workshops in related subjects for top managers in selected developing countries. It is expected that the workshop will be organised by the Centre for Industrial Development in co-operation with the leading management associations from the industrialized countries. The experts from these organisations will be eminent technical and managerial personnel from American and European industry. The purpose of the workshops will be to prepare the top managers of industries to adopt modern organisational and managerial techniques and methods and to supply them with the information and experiences used successfully in other countries.

V.B.12 ILO projects: The ILO's training activities, which form one of its major contributions to the industrialization programme, cover various forms of industrial training, including management development, training of instructors and vocational training. The programme as a whole and a number of current technical assistance projects under it were described in some detail in the ILO's contribution to the first Consolidated Report. Some additional information

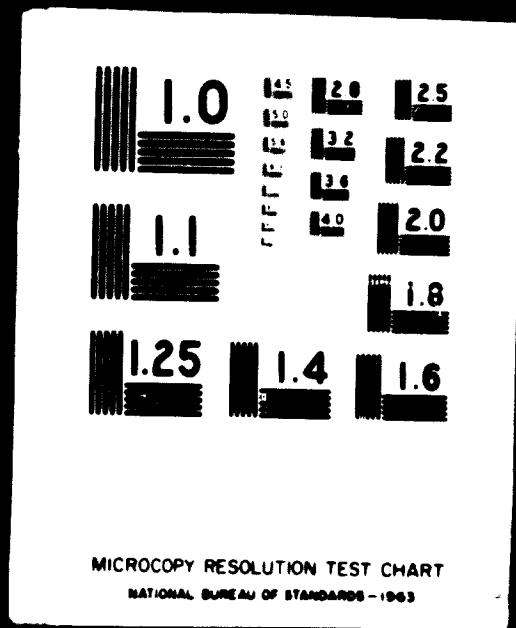


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We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche.

on these activities is given below. As regards operational activities, it has not always been possible to classify them strictly under the various subheadings of the framework of chapter V, since ILO training projects in different countries often cover various branches of training.

At the present time ILO projects in the field of management and small-scale industry development total seventy-six with a number of others recently approved but not yet functioning. The total financial commitment agreed to on these programmes by various participating organizations and Governments is approximately \$30 million. At the present time these projects cover about 300 foreign experts operating in the host countries; in addition there are approximately 200 national counterparts working alongside these experts with a view to taking over complete responsibility for the relevant training at the end of the current project.

V.B.13

Supporting activities for the ILO Management Development and productivity programme included a technical meeting on Social and Cultural Factors in Management Development, held in Geneva in 1965 and a meeting of experts on Development of Managerial and Entrepreneurial Resources in Africa in 1966.

V.B.14.

The ILO's programme in Management Development and Productivity, the general nature and purpose of which was described in the ILO contribution to the Consolidated Report last year, continues to expand and develop. The second Special Fund project, in association with the National Productivity Centre in Argentina, terminates at the end of 1966, having been extended from five to six years.

Traditionally, management development and productivity projects have been concerned to co-operate with national institutes to assist in building them up and in training members of the national staffs, primarily for the purpose of developing comprehensive programmes of courses for different levels and in different functions of management techniques. However, the programme is continuously evolving.

Greater emphasis is being placed on activities connected with employers and top managers because it is clearly recognized that they have a decisive influence as to whether or not good management will be used in their enterprises and it is their attitude which it is necessary to influence.

There seems to be no limit to the scope of the ILO management development programme. Apart from aid in setting up management development institutes all over the world, there is likely to be, in the coming years, increased emphasis on activities in industrial sectors, whether in manufacturing industry or transport, distribution, plantations, public works etc., and the ILO is steadily getting prepared through the development of pilot projects for this type of work.

It is difficult to measure the effect of this programme on economies as a whole, although its effect on enterprises can clearly be measured. At the present time it is calculated that about 20,000 people per year are going through courses given by management development and productivity institutes to which ILO missions are attached. The bulk of these have been at the middle management techniques, but a certain percentage are composed of senior and top managers. Even if the application of their knowledge and their enthusiasm to apply it may fall away, the exposure of such a large number of people to modern management theory and practices cannot but have an important effect on industrial operation even in the short run.

The experience in industrialized countries has shown that management training, however effective, is not in itself sufficient to ensure the highest productivity and efficiency in industrial enterprise. In all industrialized countries there are extensive management consultant organisations, either private firms or operated by Governments or industry associations which provide specialists able to work in enterprises advising the managements for periods which may be from a few weeks to years. The need for these in developing countries has always been recognized but experience has shown that management consultants can operate most effectively only when the managers themselves have a solid understanding of the nature of management and its use in running an enterprise. For this reason, priority has been given to the provision of training facilities which will ensure some minimum standards of management knowledge in industry.

.B.15

A number of ILO projects have reached the phase where the national staff, trained and experienced in the running of courses, are now able to enter the field of management consultancy and certain of the older projects, notably those in Iraq, Thailand and the United Arab Republic, are entering upon the phase of consultant training. In addition, a Special Fund project in Iran and a new project in Turkey, which is being carried out in association with the Ford Foundation, are primarily concerned with the training of consultants, which may be regarded as experiments.

.B.16.

In all, the ILO has currently forty-seven UNDP projects operational and approved and twenty-nine EPTA. A start has been made in the appointment of advisers in management development attached to the principal regional offices under the decentralization policy. More than 300 expert posts are involved in the current programme. The following are some examples of ILO management development and productivity projects:

.B.17.

The ILO's International Centre for Advanced Technical and Vocational Training at Turin began its activities in October 1965. The following management development programmes have been arranged for 1966/67: Dynamic Management of the Enterprise (twelve weeks); Technical Management in the Enterprise (twelve weeks); Middle Management in the Enterprise (twelve weeks).

.B.18.

Argentina - Expansion of Facilities for Management Development and Training of Specialists and Supervisory and Skilled Personnel

The National Productivity Institute of Argentina was established in October 1957 with the purpose of promoting productivity, training, and also of providing guidance and advance to the industrialists. A meeting between the Special Fund and the Argentine Government took place on 15 June 1959 and an agreement was signed on 4 December 1959.

Its purpose is to assist in expanding the facilities and activities, through a Productivity Centre, in order that an increased number of trained managers, specialists in productivity improvement techniques, supervisory and skilled personnel may be made available to meet the urgent needs of Argentine industry.

This is the first UNDP(SF)/ILO project in Latin America on management development.

A total of 582 man-months for ILO experts was provided for promotion and training of managers and counterparts as well as for demonstration projects in the following major areas:

- (a) General management and management development;
- (b) Production and maintenance;
- (c) Productivity measurement, interfirm comparison, and indirect measurement of labour productivity;
- (d) Marketing;
- (e) Management accounting;
- (f) Supervisory training;
- (g) Vocational training (adult training in crafts)
- (h) Office management;
- (i) Small enterprises;
- (j) Development and establishment of seven regional productivity centres.

A total of twenty fellowships was granted to Argentine counterparts and trainees.

The plan of operation was signed by the Argentine Government, the United Nations Special Fund and the ILO on 11 October 1960.

The project commenced with the arrival of the Chief of Project on 30 March 1960.

The plan of operation was revised on 3 February 1965 and the duration of the project extended until 31 December 1966.

Total counterpart contribution was \$952,685 and
Total Special Fund allocation was \$1,243,300

V.B.19.

Bulgaria - Management Training Centre for Engineers and Economists, Sofia

This project was approved under the UNDP (Special Fund) programme in June 1966 and the ILO was designated as the Executing Agency.

The purpose of the project, the duration of which is five years, is to assist the Government of Bulgaria in the establishment and initial operation of a Management Training Centre for Engineers and Economists. This Centre, to be located in Sofia, will operate under the supervision of the Labour and Wages Committee, but will be governed by a Board on which all agencies and organizations interested in the managerial training of executive personnel will be represented.

The main task of the Centre will be to train the majority of the existing managerial and executive personnel in managerial and supervisory positions. In the first years of operation the number of trainees will be limited by the capacities of the teaching staff, premises and training equipment. The number of persons under training will increase continuously, however, as the international expert team trains teaching staff for the Centre as well as instructors for regional centres to be established in Varna, Burgas, Plovdiv and in one or two other industrial towns. The scope of the Centre's training activities will include manufacturing industry and mining, transport and building as well as industries related to the agricultural sector. Courses, seminars, expositions and public lectures will be organized for executive personnel at all levels and advisory services will be supplied in the field of industrial management. The Centre will conduct research on the application of modern management techniques, including the use of computers, and initiate special familiarization programmes to promote interest in increasing labour productivity. It will also translate books and specialized documents dealing with management problems and issue its own publications.

The training and research programme of the Centre will be developed in close co-operation with two or three pilot enterprises located near Sofia. In these pilot enterprises, new management techniques will be introduced on an experimental basis and their effects observed and studied. An electric computer will be installed at the Centre for the purpose of training specialists in operating computers and for experimental operations related to the work at the pilot factories.

UNDP (Special Fund) assistance will consist of experts, fellowships and equipment. Expert services totalling thirty-five man-years will include a director, specialists in general management, work study, industrial psychology, production planning, quality control statistics, applied mathematics, office management, maintenance, marketing, managerial consultancy, electronic data processing, and a limited amount of consultant services. The UNDP (Special Fund) will also provide ten man-years of fellowships as well as teaching and demonstration equipment, including equipment for electronic data processing.

The Government will contribute the necessary buildings, counterpart personnel, miscellaneous equipment, services and facilities.

The Special Fund contribution is estimated in the amount of \$1,411,900 and the Government's contribution at \$3,556,165.

Preparatory work for the project started with the arrival of three experts in 1966, including the Chief of Project.

V.B.20.

Burma - Training in Stores Operation Management

Upon the request of the Government in April 1964, a project was started to train officials in the methods of stores operation management and inventory control in the Burma Railways. The project will terminate in 1967. It is financed under the UNDP(TA) programme.

The project will provide part of the dieselisation programme for the Burma Railways. Training courses will be provided in modern storekeeping practices for Burma Railways personnel, through the provision of one expert for thirty-six man-months and two fellowships, each for six months.

V.B.21.

Cambodia - Centre for Technical Staff Training and Productivity

This project was approved under the UNDP (Special Fund) programme in May 1961, and the ILO was designated as the Executing Agency. In addition to nine vocational training experts which were provided for in the Plan of Operation, a productivity section was established with the assistance of four experts in the fields of industrial engineering, management development and management accounting. The UNDP (Special Fund) contribution amounts to approximately \$1 million and the Government's contribution is in the region of \$2 million.

V.B.22

Ceylon - Management Development and Productivity Centre, Colombo

This project will be approved under the UNDP (Special Fund) programme in January 1967 and the ILO has indicated its readiness to serve as Executing Agency.

The purpose of the project, which will have a duration of five years, is to assist the Government of Ceylon in the establishment and initial operation of a Management Development and Productivity Centre. This Centre, to be located in Colombo, will be an agency of the Industrial Development Board, which will be the Co-operating Government Agency for the project.

The main task of the Centre will be to train managerial and executive personnel for the private industrial establishments and for the state industrial corporations. The scope of the Centre's activities will be extended as soon as possible to include the training of managerial and executive personnel of other state corporations in the fields of construction, transport and commerce. Courses, seminars, lectures and other forms of training will be organized for executive personnel in order to promote interest in increasing efficiency and productivity through application of modern management techniques. Advisory services, research and information and promotion activities will also be performed by the Centre.

The Management Development and Productivity Centre will work in close co-operation with industrial concerns, both private and public, in satisfying their present and future training needs. Fees will be charged for the services to be provided, and corporate membership will be offered on a subscription basis to the major supporters of the Centre. Close co-operation will be established with other institutions working in related fields, e.g., with the Institute for Scientific and Industrial Research, the Small-Industry Service Institute, Velona, the Ceylon College of Technology, Colombo, the universities and other educational institutions and professional associations.

During the project period, the Centre's training programme will concentrate on such fields as general management, production management and industrial engineering, management accounting, marketing, labour-management relations and supervisory training. The duration of the courses and seminars will vary according to the level of participants and the subject matter.

UNDP (Special Fund) assistance will consist of experts, fellowships and equipment. Expert services, totalling twenty-six and one-half man-years, will include a Project Manager and specialists in general management, industrial engineering, management accounting, marketing, labour-management relations and advanced supervisory training. The UNDP (Special Fund) will also provide five man-years of fellowships as well as teaching and reproduction equipment.

The Government will contribute the necessary buildings, adequately remunerated professionally qualified counterparts, miscellaneous equipment, services and facilities.

The UNDP (Special Fund) contribution is estimated in the amount of \$823,400 and the Government's contribution at \$604,000.

V.B.23

Cyprus - Vocational Training and Management Development

This project was approved under the UNDP (Special Fund) programme in June 1963 and the ILO was designated as the Executing Agency. The Chief of Project started in September 1963 and was joined shortly afterwards by experts in

the field of vocational training.

The UNDP (Special Fund) contribution amounts to approximately \$900,000 and the Government's contribution is in the region of \$500,000. Thirteen fellowships were provided for national personnel and equipment in the amount of \$175,000.

V.B.24.

Ghana - Management Development and Productivity Institute, Accra

This project will be approved under the UNDP (Special Fund) programme in January 1967 and the ILO will serve as Executing Agency.

The purpose of the project, the duration of which is five years, is to assist the Government of Ghana in the consolidation and expansion of the National Productivity Centre into a Management Development and Productivity Institute, located in Accra. The Institute will have the dual function of upgrading the effectiveness of practising managers and of establishing a Ghanaian business consulting unit.

The training activities of the Institute will be directed at four categories of personnel: top managers, middle managers, senior staff specialists and supervisors. Wherever possible, the experts will provide teaching on two levels, induction courses for upper and middle management, and practitioner courses for staff specialists and supervisors. Although training for each group will differ in coverage, depth and duration, it will - in all cases - consist of applied instruction designed to improve on-the-job performance.

The consultancy services will be designed to help clients improve profitability, largely by better utilization of present resources. Both trainees and counterpart staff at the Institute will participate in these consultations, which will give them the opportunity to combine theory with practice.

It is estimated that over 3,500 directors, managers and working proprietors in the fields of mining, manufacturing, construction and power will benefit directly from the activities of the Institute. To this figure must also be

added the directors and managers working in wholesale and retail enterprises, and in transport, storage, lumbering and service industries, which bring the total of managers of all levels who will benefit directly from the Institute's expansion to over 7,000. These are minimum estimates based on the 1960 census. The Institute will also have the function of co-ordinating and circulating information from various sectors of the economy relating to general and specific problems of industry.

To implement the project, the UNDP (Special Fund) will provide the services of seven experts in the fields of productivity research, personnel management, industrial engineering, management accounting, marketing and sales, cost and financial accounting and supervisory training, for a total of twenty-five man-years. Office and training equipment will also be supplied by the UNDP (Special Fund). Ghanaian counterpart staff will be awarded a total of five man-years of fellowships to gain experience abroad.

The Government of Ghana will contribute the necessary buildings, including those now occupied by the Productivity Centre, with their present equipment; professional counterpart staff, administrative personnel and ancillary facilities. The Ministry of Labour and Social Welfare will be the Co-operating Government Agency.

The UNDP (Special Fund) will allocate the amount of \$874,500 to the project and the Government's contribution is estimated at \$550,000.

V.2.24.

Guinea - National Centre for Management Development Training

A UNDP (SF) project was started in June 1966. The UNDP (SF) allocation for this project is \$1,389,300.

V.2.26

India - NITIE

Upon the request of the Government of India a five-year project, financed by a UNDP (Special Fund) allocation of \$736,000 and counterpart contribution of \$1,568,000, was started to assist the training of industrial engineers for all sectors of industry. Industrial engineers will be trained in specific techniques of industrial engineering and

thus a sound understanding of general management concepts will be provided, through the provision of 339 man-months of expert services and fifty-four man-months of fellowship programmes.

V.B.27

INDIA - Interfirm Comparison

Upon the Government's request, a project on interfirm comparison will commence in January 1967 for a period of two months, the purpose of which is to assist the All-India Management Association in its attempt to popularise interfirm comparison practices in industry for senior industrial personnel. One expert for the two man-month period has been provided. The project is associated with the All-India Management Association and the National Productivity Council.

It is financed under the UNDP (TA) programme.

V.B.28

Iran - Management Development and Supervisory Training

The project was approved under the UNDP (Special Fund) programme in June 1963 and the ILO was designated as the Executing Agency. The Plan of Operation was signed in November 1963.

The Chief of Project and experts in industrial engineering, supervisory training, marketing, work study, cost accounting, general management and finance accounting are attached to the Industrial Management Institute which was founded in March 1962.

The work of the Institute is divided into:
(a) Consultancy to private and public enterprises;
(b) Training in seminars and evening classes.

In the Institute, in addition to the ILO experts, there are forty-six professional counterparts working in five departments, namely, accountancy, engineering, marketing, supervisory training, general management and organisation. The departments are headed by department chiefs. The consultancy work is, as far as technology is concerned, supported by twenty-eight associated consulting engineers of the free market and, in the evening classes, sixteen

associated instructors are teaching in addition to the Institute's staff. The associated instructors are ranking from a minister to university professors.

During the existence of the Institute, consultancy work combined with in-plant training was achieved in 122 factories where 194 projects were finished. In the evening classes and in seminars, given in Farsi and English, more than 3,600 students had accomplished courses as at the end of October 1966.

The Institute gives advice and consults ministries, banks, co-operatives and private and public enterprises in almost all trades.

The UNDP (Special Fund) contribution to the project amounts to \$880,000 and the government contribution is in the region of \$731,000. In addition to expert services, fellowships have been provided for the counterparts totalling forty-eight man-months and equipment in the amount of \$23,000.

V.B.29

Iraq - Management Development and Supervisory Training Centre, Baghdad

Phase I of this project was approved under the UNDP (Special Fund) programme in May 1961. Experts were provided in the fields of industrial engineering, management accounting, management development, marketing and sales and supervisory training for a total of 321 man-months. Eight fellowships of six months each were awarded to national personnel and equipment was provided in the amount of \$18,000. The total UNDP (Special Fund) contribution amounted to \$864,100 and the Government contributed the equivalent of \$423,000. Phase I terminated in December 1966 after a five-year period. In June 1966, the UNDP (Special Fund) approved phase II of the project which will continue the activities of phase I for a further two years. Experts in industrial engineering, management accounting, cost accounting, general management, marketing and sales and personnel administration will be provided for 172 man-months. Eight fellowships will be awarded to the counterparts and equipment will be provided in the amount of \$10,000.

V.B.30

Kenya - Management Training and Advisory Centre

This project was approved under the UNDP (Special Fund) programme in June 1965 and the ILO is acting as Executing Agency.

The project is of five years' duration and has been operational since February 1966. The purpose of the project is to assist the Government in establishing a Management Training and Advisory Centre and to provide advisory and information services, training in management development and productivity improvement to existing and new enterprises. Training of managers and functional specialists will be organised in such fields as general management, industrial engineering, marketing and sales, management accounting, office management, personnel management and supervisory training.

Training courses will also be arranged for workers' representatives in order to help workers to understand and appreciate their role in the economic development of the country and achieve success in their work.

To date courses have been run in the field of general management for top-level executives in cost accounting, office organization and management.

The UNDP (Special Fund) contribution is estimated at \$741,900 and the Government's contribution at \$360,546. Eight experts will be provided in the fields of: industrial engineering; personnel management; management accounting; office management; marketing and sales; supervisory training; workers' education. Eight fellowships of six months' duration will be awarded for counterpart personnel and equipment in the amount of \$30,000.

V.B.31.

Malta - Survey of Industry

An ILO expert began a survey of the industry of the Island under the EPTA programme, with special reference to smaller enterprises. After making a study of the need for management training, and surveying the facilities that exist for providing such training, he is now in the course of determining what other facilities need to be provided. Owing to the very special circumstances now existing in Malta the responsibilities of industry generally to provide employment

and of the building industry in particular to provide rapidly the facilities for the booming tourist trade are greatly enhanced. The importance of this mission and the expansion of facilities to which it will look, should not, therefore, be underestimated. Our expert has from the start been very active in assisting such training activities as are currently going ahead and in promoting a wider understanding of the possibilities for the Island's advancement, which can be realized through highly skilled professional management. During the remaining period of our expert's mission, which will extend well into 1967, he will devote a major part of his time to establishing such further facilities as are required.

V.B.32

Pakistan - Management Development and Industrial Training

To assist the West Pakistan Institute of Management in the establishment of training programmes for senior and middle-management personnel, a project was approved under the UNDP (Special Fund) programme in May 1962. A UNDP (Special Fund) allocation of \$1,318,900 and a government contribution of \$1,473,285 have been provided for this project.

The Centre will provide training in industrial engineering, accounting, marketing and labour management relations for senior and middle-management personnel. It will co-operate with the West Pakistan Institute of Personnel Management in developing management development programmes in West Pakistan.

V.B.33.

Poland - Training of Managerial, Specialist and Supervisory Personnel

Following the completion of the very successful UNDP (Special Fund) project, under the agency of the ILO, a management training centre was established. The final report is in preparation.

The success of this project led to requests from a number of eastern European countries for ILO's assistance in setting up a similar type of project in their respective countries.

V.B.34.

Republic of Korea - Productivity Centre

Upon the request of the Government in August 1962, a five-year project was started to assist the Korean Productivity Centre in the development of its Training Division to aid the industrial development of the Republic of Korea and to assist the existing Business Consultancy Division of the Korean Productivity Centre. Its objective is to provide training for senior and middle-management personnel in management practices and techniques. The method of implementation is through provision of 369 man-months of expert services, fifty man-months of fellowships to train counterpart staff and provide the establishment of a sound training programme, and equipment in the amount of \$35,000.

The project is financed by a UNDP (Special Fund) allocation of \$884,400 and counterpart contribution of \$830,833. The ILO is Executing Agency.

V.B.35

Singapore - Productivity Centre

At the Government's request, a two-year project, 1966-1968, financed by UNDP (TA) will start with the purpose of assisting in the implementation of a charter for industrial progress and productivity code of practices for the establishment of a joint workers-management council in industry, in co-operation with the UNDP (Special Fund) light industries services project.

By the provision of an initial period of forty-eight man months of expert services, the project is to undertake job evaluation in selected industries and recommend and advise on wage and salary administration problems.

V.B.36.

Sudan - Management Development and Productivity Centre

This project was approved under the UNDP (Special Fund) programme in June 1964 and the ILO is acting as Executing Agency.

The project, which has been operational since June 1965, has a five-year duration. Its purpose consists of assisting the Government in establishing the Management Development

and Productivity Centre in Khartoum to provide training and development in management and supervision as well as productivity promotion and improvement. Training and development cover such fields as general management, industrial engineering, management accounting, marketing and sales and supervisory training. Six experts will be provided in these fields and six fellowships of six months' duration will be awarded to counterparts. Equipment will be provided in the amount of \$25,000.

To date the international experts and their counterparts have organized courses in supervisory training and have participated as lecturers in seminars for top management. They have also undertaken practical assignments in textile plants and wood-processing factories. The UNDP (Special Fund) contribution is estimated at \$547,700 and the Government's contribution will be in the region of \$411,000.

V.B.37

Syria - Management Development Centre

This project was approved under the UNDP (Special Fund) programme in June 1963 and the ILO was designated as the Executing Agency. Two hundred and forty-six experts' man months were approved in the Plan of Operation to provide experts in the fields of general and commercial management, industrial engineering, cost accounting, marketing and sales, supervisory training, textile productivity, office management (organization of methods and consultants). Six fellowships of six months each have been allocated for counterparts and an amount of \$25,000 for equipment and supplies.

V.B.38

Tanzania - National Institute of Productivity

This project was approved under the UNDP (Special Fund) programme in January 1965 and the ILO is acting as Executing Agency.

The project will have a five-year duration and has been operational since November 1965. Its purpose is to assist the Government in establishing a National Institute for Productivity to provide advisory information and training for industry and business in the field of management development and labour productivity. More particularly

the Centre is called upon to promote activity throughout the country, to introduce modern productivity techniques suitably adapted to the social, economic and technical conditions of the country and to establish suitably adapted standards of performance, to promote a healthy spirit of co-operation between governing management and labour and to supply and disseminate technical information and know-how in modern productivity techniques. The institute will assist in the following fields: general management, industrial engineering, management accounting, marketing and sales, personnel management, supervisory training, productivity statistics and workers' education. Eight experts will be provided; sixteen fellowships of six months and equipment amounting to \$35,000.

To date the Institute has provided advisory services to various industries in the country such as the cotton, sisal and sugar industries. Training programmes have been organized in the fields of general management, supervisory training, personnel management and work study.

Total UNDP (Special Fund) contribution will amount to \$854,000 and the Government's contribution will be in the region of \$407,700.

V.B.39

Thailand - Management Development and Productivity Centre

The purpose of the Thailand project is to assist the establishment and development of a productivity centre to provide training of senior and middle-management and supervisory personnel in management practices and techniques to provide advisory services. The project was approved under the UNDP (Special Fund) programme in May 1961 and the ILO is Executing Agency.

The project which will terminate in June 1967, is financed by a UNDP (Special Fund) allocation of \$710,000 and a government contribution of \$272,300. Two hundred and ninety-eight man-months of expert services were provided for this project and fifty-eight man-months of fellowships to train counterpart staff.

V.B.40

Trinidad and Tobago - Management Development and Productivity Centre

In 1963 the UNDP (Special Fund) was requested to assist in establishing and operating a Management Development and Productivity Centre in Port of Spain. The project was approved under the UNDP(SF) programme in June 1964. The project became operational on 1 January 1965 and will have a duration of five years.

The objectives of the project are:

- a) To train counterparts from Trinidad and Tobago and from the eastern Caribbean countries, managers, business executives, specialists and industrial supervisors in modern management and productivity techniques;
- b) To promote productivity improvement in all its forms;
- c) To develop advisory and direct services for industrial and other enterprises;
- d) To carry out research on the practical applications of modern management techniques and to provide up-to-date documentation on modern management practices.

A total of 222 man-months of expert services will be used through a combination of the following techniques: direct (in-plant) assistance to participating industries, workshop, lecturing, seminars and fellowships. Follow-up reporting and refresher courses are included in the training programme. Training is given in general management, industrial engineering, management accounting, marketing and sales and supervisory training.

The Special Fund will also provide five fellowships of six months' duration each and equipment in the amount of \$23,000. The total Special Fund contribution is estimated at \$499,000 and the Government's contribution at \$396,000.

So far the ILO has provided a total of sixty-six man-months of expert services in the following fields: general management; industrial engineering; marketing and sales; supervisory training.

Tunisia - National Productivity Institute, Tunis

The aim of the project is to assist the National Productivity Institute to strengthen and expand its activities for the benefit of technical service institutions under state control, as well as public and private industrial, commercial and agricultural enterprises. The UNDP (Special Fund) has been requested by the Government to give assistance in this respect. The ILO will act as Executing Agency for the project.

The objectives of the Institute have been defined as follows:

- a) To organize the training and upgrading courses and seminars of the national technical permanent staff who would later continue the programmes and training activities initiated by the international experts during the implementation of the project.
- b) To organize training and upgrading courses and the national technical permanent staff organization and operation of public and private enterprises and bodies;
- c) To contribute to the modernization of enterprises and bodies through practical demonstrations of scientific management methods and the dissemination of modern management techniques;
- d) To contribute to the improvement of productivity by undertaking basic research projects at national, regional and sectoral levels;
- e) To collaborate in studies relating to the establishment of new economic activities;
- f) To follow the development of productivity in the different economic sectors;
- g) To stimulate, encourage or co-operate in the establishment of institutions or specialised groups for the improvement of productivity by professional branch or sectors;

To achieve the objectives set out in the preceding paragraph, the following methods will be adopted:

- a) Information and training courses of a general nature in the various management fields for the benefit of the permanent national technical staff;

- b) General and specialized seminars for managers and senior staff of public and private enterprises as well as of national services under state control;
- c) Pilot projects for the benefit of public and private enterprises with a view to improving the practical experience of the technical permanent national staff and to collecting cases and studies drawn from the national economic context for use in conferences and seminars.
- d) Consulting and on-the-spot diagnoses;
- e) Setting up and introducing methods for productivity measurement and for interfirm comparison;
- f) General information meetings organized in co-operation with the authorities, workers' and employers' representatives, cultural associations, the university etc.

The UNDP (Special Fund) will provide 258 man-months of expert services in the following fields: general management and control; cost accounting; industrial engineering; sales and organization; productivity measurement and enterprise comparison; quality control; management rural co-operatives and a number of short-term consultants. Four experts are already in post including the Chief of Project. Fifteen fellowships of six months' duration each will also be promoted as well as equipment in the amount of \$25,000. The total UNDP(Special Fund) contribution is estimated at approximately \$660,000 and the Government's contribution at approximately \$830,000.

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Turkey - Establishment of the Turkish Management Development Centre

A five-year project was approved under the UNDP (Special Fund) in January 1966, for which the ILO will act as the Executing Agency. The UNDP(Special Fund) contribution totals \$1,293,600. A Management Development Centre has been set up which includes high-level consultancy service for Turkish industry, both public and private, as well as training for industrial managers.

V.B.43.

Venezuela - Institute of Productivity

The assistance of the UNDP (Special Fund) was requested by the Government of Venezuela to strengthen and expand the Venezuela Institute of Productivity in order to improve management development and productivity in six regions of Venezuela. Industrial expansion was urgently needed in Venezuela to provide employment for a rapidly growing population. A gradual conversion of the country's economy from its heavy dependence on petroleum to a more balanced pattern of output was required. Industrial expansion and diversification in the provincial areas was required in order to give the country a more even geographical distribution of economic activities and income.

The project was approved for implementation in January 1965 and its purposes are the following:

- a) To develop management training by means of courses and apply it to industrial enterprises;
- b) To promote productivity improvement in all its forms;
- c) To expand advisory or technical assistance services;
- d) To broaden the work of the Institute in productivity research and the applications of modern management techniques.

Since the project started, two regional centres were put into operation in Venezuela. A total of fifteen courses on technical assistance have been presented in the fields of management accounting, industrial engineering and general management. Direct technical assistance has been given to enterprises as a training media, and as a source of base studies and course material. Diagnostics were concentrated mainly in the garment and shoe industrial sectors.

Productivity improvement programmes were designed for joint operation with organizations currently co-operating with the Venezuelan Productivity Institute (i.e., three government financial institutions and industrial associations).

Lectures, training courses, enterprise diagnosis, and direct technical assistance have been provided to the most needed basic industrial sectors; to technical and administrative personnel of the Venezuelan Institute of

Productivity; to industries starting in selected geographical areas; to regional centres, to selected business sectors; to selected decentralized government institutions; to universities and to selected professional associations and labour unions.

The ILO has so far provided seventy-nine man-months of expert services in the following fields; general management; productivity promotion; industrial engineering; management accounting; personnel management; productivity measurement.

V.B.44 ECAFE project: Management of Electricity Supply Industry

Authority: Sub-Committee on Electric Power, Committee on Industry and Natural Resources, and the Commission.

Description: The purpose of the project is to render assistance to the countries of the region in the management of the electric supply industry.

The ECAFE secretariat provided, through its regional adviser, advisory assistance to the countries, and a manual on this subject will also be published.

The project is related to organization and management of electric supply undertakings.

Duration: Further assistance will be given on request.

Estimated cost and source of funds: Regular budget of ECAFE.

V.B.45 CID project: Technical Assistance to Afghanistan in the Field of Industrial Planning

Description: An industrial planning expert from the Centre for Industrial Development in 1966 assisted in co-ordinating the formulation and economic evaluation of industrial projects and the formulation of development plans for the industrial and mining sectors; gave advice and assisted in the execution of projections on industrial demand and on studies of efficient projection potentials related to minimum economic size of plants and mines, optimum location, availability of local raw materials, services and possibilities of vertical integration. The expert was posted in

Afghanistan for a total of twelve months at an estimated cost of \$22,000, financed by the OPEX programme of technical assistance.

V.B.46 CID project: Technical Assistance to Burma in the Field of Management Techniques

Description:

An expert contracted by the Centre for Industrial Development assisted the Government Institute for Training in Accounts and Audit of Burma in the training of the senior staff of the Directorate of Commercial Audit and senior accounting personnel of boards and corporations in modern management techniques. In 1966 the expert was in Burma for twelve months at an estimated cost of \$22,000, financed by the Expanded Programme of Technical Assistance.

V.B.47 CID project: Technical Assistance to China in the Field of Industrial Management

Description:

An expert from the Netherlands contracted by the Centre for Industrial Development, undertook a diagnostic survey for improving the standards of industrial management, with emphasis on marketing, organisation and planning, management control and materials management, and examined ways and means of providing centralised services to management of industrial enterprises via the Industrial Management and Development Institute. The expert was in Taiwan for one month at an estimated cost of \$4,000, financed by the Expanded Programme of Technical Assistance.

V.B.48 CID project: Technical Assistance to Ghana in the Field of Industrial Management

Description:

At the request of the Government of Ghana for technical assistance under the programme of Special Industrial Services provided by the Centre for Industrial Development, in 1966, (a) two experts completed a one-month mission to advise on the re-organisation of the State Enterprises Secretariat, which has the responsibility of managing and overseeing industries owned by the State, and (b) a four-man mission was sent to provide assistance to the Fibre Bag Manufacturing Corporation as follows: managing director

for twelve months; workshop superintendent for twelve months; maintenance engineer for twelve months; industrial cost accountant for three months.

V.B.49. CID project: Technical Assistance to Iraq in the Field of Stores Management

Description:

In 1966, an expert in stores management from the Centre for Industrial Development assisted the Ministry of Industry of Iraq on, among other things, how to advise on all matters relating to stores management, prepare programmes and procedures for storing of incoming and outgoing materials and equipment, help in the preparation of stores budgets, and introduce stores management procedures in each of the factories, and also on how to train Iraqi counterparts. The expert was posted to Iraq for twelve months at an estimated cost of \$22,000, financed by the Expanded Programme of Technical Assistance.

V.B.50. CID project: Technical Assistance to Malaysia in the Field of Industrial Management

Description:

In 1966 an expert from the Centre for Industrial Development assisted the Management and Advisory Services Division of Majlis Amanah Ra'ayat (MARA-Ra'ayat Trust Council), a corporate body attached to the Ministry of National and Rural Development that carries out programmes for the promotion of indigenous enterprises. The expert organized the Management and Advisory Services Division; assisted in drawing up and implementing a gradually expanding programme of activities of the Division, including consultant services in the fields of technology, management, marketing etc. for small and medium-size business and advised on recruitment and training of personnel for the Division and on obtaining contract services, when required. In carrying out his duties, the expert worked closely with the Commerce and Industry Division and the Training Division of MARA. The expert was in Malaysia for six months at an estimated cost of \$10,000, financed by the Expanded Programme of Technical Assistance.

C. In-Plant Training of Engineers (including Apprenticeship and Other Training within Undertakings)

CID project:

In-Plant Group Training Programmes

The Centre for Industrial Development has undertaken the organization of in-plant group training programmes for engineers and technicians in a variety of fields of industry, with the co-operation of various industrialized countries. Each programme is being tailored to the facilities available in the host country and the particular needs of the recipient countries. The organization of these programmes is preceded by informal consultations with the host Government about the possibilities of providing host facilities in selected branches of industry. This is followed by the submission of a programme of training by the Centre for Industrial Development to the host Government, which is further discussed, adapted and finalized after a detailed exchange of views by the country's officials and by the authorities in the industrialized country entrusted with the task of implementing the training programme. The Governments of the developing countries are then invited to submit nominations for the programme's participants. Financial contributions are made to these programmes by all of the three parties concerned, namely, the United Nations, the participating Government and the host Government of the industrialized country. The round-trip travel costs are borne by the United Nations, and the participating Government is responsible for the local salaries of its nominees during the period of training. The host Government, on the other hand, is responsible for boarding, lodging, internal travel related to the training and overhead training costs. These costs are in general about 150 per cent of that spent by the United Nations. Details of the programmes are as follows.

C.I.

In the Ukrainian SSR, a group in-plant training programme in the iron and steel industry is being organized annually by the Centre for Industrial Development. In 1966 the programme was organized for five months, beginning in June, for thirty-seven engineers from the developing countries. The total estimated cost of the project was \$80,000, financed by the Expanded Programme of Technical Assistance.

- V.C.2 An in-plant training programme for engineers from the field of electrical equipment is being organized by the Centre for Industrial Development in Sweden. In 1966 the programme was conducted for five months, beginning 1 February, for twenty engineers. The estimated cost was \$25,000, financed by the Expanded Programme of Technical Assistance. In view of its success, the programme will be repeated for 1967.
- V.C.3 An in-plant training programme for twenty engineers from the developing countries in the field of non-ferrous metals was organized by the Centre for Industrial Development in Yugoslavia. The programme began in November 1966 and will last for six months. The estimated cost is \$25,000, financed by the Expanded Programme of Technical Assistance.
- V. C.4. The Centre for Industrial Development is implementing an in-plant training programme in the textile industry to be held for twenty-five engineers and technicians in Poland, beginning 1 May 1967. The estimated cost of this project is \$25,000, to be financed by the Expanded Programme of Technical Assistance.
- V.C.5. In Italy, the Centre for Industrial Development is organizing two in-plant training programmes in the fields of metallurgy and production of textile machinery. Ten engineers and technicians from the developing countries will participate in each of the two programmes which are scheduled to start in February 1967 and to last for fifteen weeks. The total estimated cost of the two programmes is \$25,000, to be financed by the Expanded Programme of Technical Assistance.
- V.C.6. In France, the Centre for Industrial Development has organized an in-plant training programme for three engineers in the field of prevention of corrosion. The programme will begin in September 1967 for seven months. The estimated cost is \$5,000, to be financed by the Expanded Programme of Technical Assistance.

V.C.7.

The Centre for Industrial Development is negotiating the organization of in-plant training programmes in 1968 in the following countries: Federal Republic of Germany, in the field of machine tool manufacturing; United Kingdom, in food-processing equipment; Denmark, in cement; Netherlands, in electronics or consumer electrical appliances, and Japan, in materials management and inventory control, industrial maintenance and shipbuilding.

D. Pre-Industrial Training and Basic
Pre-Employment Training

No reports have been received for projects under this heading.

E. Accelerated and Other Training for Adults for
Employment in Industry

V.E.1. ECA project: Training Facilities in Africa

A questionnaire on training facilities in Africa, prepared by ECA, was sent to member States seeking information on national training facilities available to trainees from all African countries. The purpose of the questionnaire was to collect such information for the benefit of member States in their efforts to co-operate in developing and utilizing the training facilities in the region.

V.E.2. ECA project: Working Party on Manpower and Training

See entries Nos. II.F.12 and 13.

V.E.3. ECA project: Co-ordination of Training in Africa

The ECA has been active in promoting the formation of national machineries for the co-ordination and administration of training in African countries. In an effort to assist African countries in building up their trained manpower resources, information on various training and study opportunities, including fellowships and scholarships facilities within and outside Africa, has been regularly made available to African Government and industrial institutions through the quarterly issue of an ECA Training Information Notice.

Requests from African Governments for bilateral fellowships and scholarships are also being co-ordinated.

F. Training of Foremen and Other First-Line Supervisors

No reports have been received for projects under this heading.

G. Training of Instructors, Training Officers and Administrators in Industrial Training

ILO projects.

G.1.

The central and most extensive activities of the ILO in the industrial training field remain those of training a cadre of vocational training planners, directors and instructors for essential trades and occupations. The technical scope and size of the institutions vary depending upon the needs of the country concerned and the requirements spelt out in its development plan or identified through special planning missions. Comprehensive schemes of this nature are at present being implemented, for instance, in India where four new instructor-training institutes are being established with ILO assistance relating, *inter alia*, to such industries as the metal trades, electrical engineering, foundries and shipyards; in Nigeria (metal trades, building and construction, electrical engineering and furniture industries); in Morocco (predominantly metal trades); and in the United Arab Republic (metal, automotive and electrical trades). These institutes normally include the training of both instructors for training centres (youth and/or adults) and supervisors/instructors drawn from existing industry for in-plant training.

G.2

The following courses, intended respectively for senior officials responsible for the organization of vocational and advanced training at the national and regional level, and those responsible for the direction of vocational and advanced training centres, have been arranged for 1966/67 by the ILO International Centre for Advanced Technical and Vocational Training:

Organization of Vocational Training (twelve weeks);
Management of Vocational Training (twelve weeks).

G.3.

The following advanced vocational training programmes have also been arranged by ILO for 1966/67, each course lasting for twenty-four weeks:

Mechanical engineering;
Automobile and diesel engineering;
Agricultural machinery;
Machine maintenance;

Electricity;
Electronics;
Industry drawing;
Welding and sheet metal work;
Building.

These courses are intended for instructors, foremen and highly qualified workers, primarily from the developing countries, who already hold a position in an undertaking or in a training institution in their country.

V.G.4 UNESCO project: National Centre for Industrial Teacher Training, Mexico City

Description:

The purpose of this Centre is to train lecturers for technical schools in Mexico. The first group of students in mechanics, electronics, electrotechnics and building construction will graduate early in 1967. A good part of the present technical teachers in the country have not had formal training in technology, and the Centre will thus serve to improve the training of technicians, skilled operators and cadres now much in demand for Mexico's rapid industrial development. An amount of \$1,009,425 has been allocated for this project.

H. Vocational Training

V.H.1 ILO projects: In research, emphasis was placed by the ILO during the year on evaluation of various apprenticeship regularions and other in-service training systems with a view to determining the extent to which these are meeting the requirements of the countries concerned and what may need to be done to adapt the systems to changing requirements and, in particular, to make them effective in assisting smaller industries in their development. The most intensive research programme, comprising some ten projects, has been started in Latin America, where the ILO Regional Research Centre - CINTERFOR - has now become a consolidated unit for applied research working in close co-operation with all the major national vocational training services of the area. Several reports on case studies, many of them relating to the training of industrial workers, will be published in 1967 and, in some cases, discussed with a view to exploring the practical implications of the results obtained at seminars and expert groups meetings to be convened by the Centre.

V.H.2. A gradual extension of this research - in Latin America within the framework of the human resources development plan adopted by the Conference of the American States Members of the ILO at Ottawa in September 1966 - is being planned and additional case studies are being made in Africa and Arab countries. This research programme forms part of the preparatory work undertaken by the ILO for an expert meeting on the planning of vocational training systems which is to meet in the second half of 1967.

V.H.3. The integration of the research centre CIRF into the regular activities and budget of the Office has permitted the ILO to intensify and somewhat broaden its information activities in the field of vocational training. The periodical publication of CIRF Abstracts, which reports on current developments in vocational training, has continued: many items abstracted in some considerable detail relate directly to training in and for industry. The same applies to the bulletin Training for Progress which, during the year, has dealt, inter alia, with such questions as the promotion of industrial apprenticeship for large and small industry with emphasis on the problems encountered and

solutions found in developing countries, the evaluation of supervisory training and the establishment of standard syllabi and training aids for industrial trades.

V.H.4

On the basis of the principles laid down in ILO Recommendation No.117 concerning Vocational Training and gradually developing research relating to the role of vocational training for workers, supervisors and other technical staff in industrial and other economic development, the Office has in 1965-66 continued its technical co-operation activities at about the same level and along the same general lines of policy as in the past. The research activities have been somewhat broadened, the interrelationships between human resources development, economic development and vocational training action have been further emphasised, and a beginning has been made towards assessing vocational training requirements in the light of economic development needs of countries at various stages of economic and educational advance.

V.H.5.

The operational activities of the ILO in the field of vocational training relating to industrial trades and activities now comprise some ninety projects implemented by more than 300 experts in almost sixty countries.

The nature, scope and level of training of these projects vary greatly. Some - as for instance in Chad - relate to training at the most primitive industrial level of rural artisans, who are encouraged and assisted in setting up or improving village workshops for wood and metal work. Short basic training in a central training workshop of instructors and village workers is followed by mobile courses run by indigenous instructors with a specially equipped instruction workshop on wheels (two experts, 114 man-months - project also receiving French bilateral support).

✓ The figures given for experts and man-months in the examples quoted in the following paragraphs relate to the total duration of the projects.

V.H.6.

ther projects relate to the training of workers in modern skills at high levels of qualification for central industrial or semi-industrial services. Examples are those in the United Arab Republic (organization of training facilities at different levels of skill for Egyptian Railways, involving seventeen experts and 315 man-months); also a project in preparation concerning training of workers and technical staff for electric power production, transmission and distribution - eight experts, 216 man-months); and in the Democratic Republic of the Congo (Kinshasa) (reorganization of a repair and maintenance shop for the vehicles of the Ministry of Public Works and training of its maintenance workers under a trust fund project paid for by the Government - six experts). There are a number of such sectoral projects, mostly in countries which have already received assistance relating to their over-all and basic vocational training policies and requirements, primarily for industry.

V.H.7.

The development of ILO training projects in a country involves a series of actions, not always following each other in the same order, which generally include the establishment of basic standards of training, providing for a national system of training, e.g., in Ethiopia, where the purpose of the project, involving two experts and twenty-four man-months, is to establish standards and trade tests using as a pilot group the training of workers needed in industries to be established according to the national five-year development plan; or the reorganization of the existing system with a view to fitting it better to the evolving needs of industry and other fields of economic activity, e.g., in the Ivory Coast project involving one expert for eighteen months. Similar projects are being implemented elsewhere, for instance in Tunisia. Other projects include the establishment of basic training workshops in which basic industrial trade knowledge and skill are taught to young people (Mauritius - eleven experts, 336 man-months), or adults (Saudi Arabia - twelve experts, 378 man-months based on a trust fund arrangement), or for upgrading and updating of skill and knowledge of craftsmen in industry and transport (Togo - two experts, forty-one man-months plus additional French bilateral aid, and Algeria - sixteen experts, 452 man-months), the latter projects combining accelerated training of adults with upgrading and training for promotion in the general framework of the national manpower and industrial development plans.

V.K.S.

The following is a list of technical co-operation projects related to industrialization and executed by the ILO. All these projects had either started or were being prepared in 1966. The figures given for the projects indicate the number of experts and of man-months available in 1967. Projects completed in 1966 are not included on the list. The projects are listed under five headings according to their major purpose, but it should be noted that many of them cover more than the area indicated by the headings (e.g., many of the projects under heading 3 also include instructor training).

1. Organization and planning of vocational training, advisory services

	<u>Number of experts</u>	<u>Number of man-months</u>
<u>(available in 1967)</u>		
<u>Algeria</u>	Adviser on human resources planning to the Vocational Training Commissions..... 1	12
<u>Burma</u>	Organization of vocational training..... 1	4
<u>Cameroon</u>	Planning of vocational training..... 1	12
<u>Rep. of Congo</u>	Manpower planning and organization..... 1	12
<u>Ethiopia</u>	Organization of vocational training..... 2	20
<u>Gabon</u>	Adviser to Ministry of Labour on organization of adult vocational training centres..... 1	12
<u>Guinea</u>	Planning and organization of vocational training 2	17

✓ Figures for 1967 are given because the detailed reports for 1966 were destroyed by a fire in November 1966 and could not yet be completely re-established.

		<u>Number of experts</u>	<u>Number of man-months</u> (Available in 1967)
<u>India</u>	Organising training scheme for industrial trades.....	4	14
<u>Iran</u>	Planning of vocational training.....	3	24
<u>Iran</u>	Planning of training of young workers.....	1	3
<u>Ivory Coast</u>	Planning and organisation of vocations, training.....	1	12
<u>Kenya</u>	Organisation of vocational training.....	2	12
<u>Kuwait</u>	Organisation of vocational training.....	1	4
<u>Libya</u>	Training adviser, Chief industrial training.....	2	24
<u>Libya</u>	Organisation of national apprenticeship scheme, in-plant and supervisory training.....	9	70
<u>Malaysia</u>	Vocational training adviser....	1	12
<u>Mali</u>	Planning and organisation of vocational training.....	1	9
<u>Mauritius</u>	Organisation of national vocational training office.....	3	30
<u>Pakistan</u>	Organisation of apprenticeship schemes.....	4	48
<u>Philippines</u>	Vocational training adviser	1	12
<u>Rep. of Korea</u>	Vocational training, technical adviser.....	2	12
<u>Senegal</u>	Planning and organisation of vocational training.....	1	12

		<u>Number of experts</u> (Available in 1967)	<u>Number of man-months</u>
<u>Swaziland</u>	Vocational training adviser.....	1	6
<u>Tunisia</u>	Organization of apprenticeship in undertakings.....	1	3
<u>Zambia</u>	Organization of vocational training.....	2	18
2. <u>Multitrade projects: training of instructors and supervisors</u>			
<u>Cambodia</u>	Training centre for technical and productivity personnel... 3		29
<u>Chile</u>	National centre for the training of instructors, foremen and highly skilled personnel (CENFIS)..... 7		37
<u>China (Taiwan)</u>	National vocational training service for industry - instructor training..... 2		12
<u>Colombia</u>	Programme of foremen and worker training..... 4		22
<u>Congo</u>	Training of technical instructors for adults' vocational training centres and undertakings..... 3		36
<u>India</u>	Two central instructor training institutes..... 7		29
<u>Iran</u>	Instructor and foreman training institute..... 9		52
<u>Mexico</u>	Vocational training in industrial drawing..... 1		9
<u>Nigeria</u>	National institute for training instructors and technical staff..... 12		66
<u>Nigeria</u>	Instructor and foreman training for industry and training centres..... 2		12

	<u>Number of experts</u>	<u>Number of man-months</u> (Available in 1967)
<u>Pakistan</u> Supervisory and instructor training.....	4	48
<u>Pakistan</u> Instructor training centre..	3	15
<u>Uruguay</u> Instructor training institute of the Worker University of Uruguay.....	6	66
3. <u>Multitrade projects : training of workers</u>		
<u>Algeria</u> National institute for adult vocational training.....	16	134
<u>Argentina</u> Adult vocational training.	3	14
<u>Brazil</u> Vocational training for industry.....	1	6
<u>Burundi</u> Accelerated vocational training.....	1	12
<u>Chad</u> Vocational training of village artisans.....	1	12
<u>Colombia</u> National vocational training service (SENA)	11	100
<u>Congo (Democratic Republic of)</u> Reorganization and training in the workshops of the Central Mechanization Service.....	6	72
<u>Costa Rica</u> National Apprenticeship Institute (INA).....	4	39
<u>Costa Rica</u> Training for industry.....	3	12
<u>Cyprus</u> Vocational training development and supervisory training....	7	84
<u>India</u> Upgrading training in tool and die industry.....	4	20
<u>Qatar</u> Pilot centre for the vocational training of adult workers...	5	48

		<u>Number of experts (available</u>	<u>Number of man-months in 1967)</u>
<u>Libya</u>	Industrial vocational training centre.....	6	36
<u>Malaysia</u>	Trade training.....	1	12
<u>Mexico</u>	National service for the accelerated training of industrial manpower.....	10	114
<u>Nepal</u>	Vocational training in metal and building trades.....	1	12
<u>Pakistan</u>	Engineering unit.....	2	12
<u>Peru</u>	National vocational training service for industry (SENATI)	3	30
<u>Saudi Arabia</u>	Vocational training in industrial, building and electrical trades	20	235
<u>Syria</u>	Vocational training in metal, building and printing trades	5	33
<u>Tanzania</u>	Interplant centre for further training.....	1	12
<u>Tunisia</u>	National institute for vocational training and further training	12	137
<u>Turkey</u>	In-service vocational training and further training in industry.....	4	48
<u>UAR</u>	Upgrading training in several trades.....	6	48
<u>Yemen</u>	Training for industry.....	2	24
4. Sectoral projects			
<u>Bolivia</u>	Training in rural artisan trades (Andean Programme)	1	12
<u>Botswana</u>	Training in electrical trades	1	9
<u>Cameroon</u>	Vocational training of automobile mechanics.....	2	24

		<u>Number of experts</u> (available in 1967)	<u>Number of man-months</u>
<u>Chile</u>	Vocational training, apprenticeship and training for the building industry.....	4	28
<u>China (Taiwan)</u>	Auto technician and instructor training centre.....	3	5
<u>China (Taiwan)</u>	Metal industries development centre.....	5	53
<u>Ecuador</u>	Training in rural artisan trades (Andean Programme).....	1	12
<u>El Salvador</u>	Vocational training for the building industry.....	3	18
<u>Iraq</u>	General maintenance training for Iraqi Railways.....	1	12
<u>Laos</u>	Vocational training in cartography.....	2	18
<u>Lebanon</u>	Vocational training in general mechanics.....	1	6
<u>Pakistan</u>	Vocational training for marine diesel centre.....	2	18
<u>Peru</u>	Training in rural artisan trades (Andean Programme)....	1	12
<u>Sierra Leone</u>	Vocational training in building trades.....	1	9
<u>Sudan</u>	Pilot training centre for maintenance personnel for earth-moving equipment.....	9	30
<u>UAR</u>	Vocational training for Egyptian Railways.....	10	50
<u>UAR</u>	Electrical Power Institute... 2	2	16
<u>Yugoslavia</u>	Training centre for building construction personnel.....	8	33

Number
of Number of
experts man-months
(available in 1967)

5. Prevocational training

<u>Algeria</u>	Prevocational training.....	2	8
<u>India</u>	Prevocational training.....	1	6
<u>Tunisia</u>	Pre-apprenticeship for girls.	1	12
<u>Tunisia</u>	Prevocational training in the coastal areas.....	1	2
<u>UAR</u>	Prevocational training.....	1	6

I. Training of Skilled and Unskilled Labour

V.I.1. ILO project. The pilot study on the costs of alternative methods of training craftsmen and technicians referred to in the last Consolidated Report (E/C.5/125/Add.1, p.56) was in the process of revision during 1966.

J. Upgrading and Training for Promotion

No reports have been received for projects under this heading.

K. Educational Activities Closely Related to Industry. Including Educational Planning for Industry

V.K.1. UNESCO projects: Various booklets have been and will be printed by UNESCO giving some guidelines relating to facilities for technical education:

A booklet describing an advanced technical school for civil engineering and architecture is being printed. The author, Mr. Hiernholts (France), based his study on three draft papers prepared by specialists from Italy, France and the Soviet Union;

Mr. Bollinger (Federal Republic of Germany) prepared a similar booklet describing a secondary technical school for mechanics. This too has already been sent to the printers;

Mrs. Riskeva (Bulgaria) is preparing a similar booklet describing a technical school specially designed for those going into the chemical industry;

Mr. Charlier (Belgium) is describing a technical school in the field of public works.

V.K.2.

Research and studies are also being carried out under the technical assistance programme;

Dr. Robredo (Spain) is under contract to work at the Laboratory for Materials Testing, Ministry of Public Works, in Argentina. He is looking into the various possibilities of utilizing local resources in the production of refractory materials. He carried out the first part of his mission in May, the equipment has been ordered and the second part of his mission will be carried out at the end of October (\$10,000);

Mr. L. Krach (France) is carrying out a six-month mission in Cuba to advise on the organization of the National Institute of Metrology. His mission will be completed at the beginning of November (\$20,000);

Professor Frick (France) is beginning a six-week advisory mission on the organization and construction of an Institute for Research in Electronics in the UAR (\$2,500).

Many short-term missions in connexion with scientific and technical education problems have also been organized under the Participation Programme.

V.K.3.

Over the last decades requirements where engineers are concerned have completely changed. With the introduction of atomic power into everyday life, new and powerful sources of energy have been released which necessarily require an increase in theoretical knowledge. New synthetic materials have been discovered, which to a large extent will replace the more classical materials such as wood, ceramics and metal. Automation has been introduced both into the production process and in the control of production. All these various changes bring in their wake technological changes in many branches of production.

The teaching and training of engineers should anticipate and meet these trends. It has been proposed, therefore, that an international conference of experts on the trends in engineering education be convened in Paris in 1968. The conference will deal mainly with the changing aspects of various engineering fields and the effect of these changes on the education and training of engineers. The conference will also consider such matters as the trends in the content and methods of engineering education, the utilization of teaching aids, the most suitable organization of engineering schools within the general university education, the requirements necessary for continuing the education of professional engineers, problems of selection and training of engineering teachers, the role of laboratories and computers, the relation between the engineering profession and other technical branches, the engineer's place in society, and any other subjects which specialists might consider suitable for discussion.

V.K.4.

The following studies have been or are being carried out as preparatory work for the conference:

Professor R. Kling (France) prepared a study on long-term planning of engineering education in France;

Similar studies are being prepared by Dr. Mitchko (USSR) and Professor Hanani (Israel) on the same subject regarding their respective countries. These studies will be completed by the end of 1966;

Professor B. Carnahan (USA) is preparing a paper on the role of computers in engineering education;

Professor N. Balabanian (USA) is preparing a paper on programmed learning in engineering education;

FEANI, Fédération Européenne d'Associations Nationales d'Ingénieurs, prepared a study dealing with the post-graduate training of engineers;

SILAEC, Secrétariat International des Ingénieurs, des Agronomes et des Cadres Economiques Catholiques, prepared a study on the relationship between the engineer and society and considered the trends in that relationship;

The World ORT Union prepared a study on the role of the technician as compared with that of the engineer in industry, and the requirements in the teaching and training of the two specialists;

UPADI, Union Panamericana de Asociaciones de Ingenieros, has been made responsible for preparing a statistical study over a period of many years of the engineering profession in Brazil, Uruguay and Chile, which they will then interpret;

FEANI is preparing a study on the trends in the teaching of technicians in the industrialized countries of Europe with suggestions on how to adapt these trends to the needs of the less developed countries;

U.S. Two studies have been prepared representing a beginning of a collection of documentation on laboratories in engineering education:

One was prepared by UATI, the Union des Associations Techniques Internationales, giving a description of the best French laboratories in the above field;

The other was prepared by ERSI, Etudes et Recherches Scientifiques et Industrielles (a French organisation), and is a preliminary survey of bibliographical sources for laboratories in technical education.

V.K.6 CID project:

Studies of Managerial and Technical Personnel Requirements in Selected Industries

Description:

Research into problems of estimation of managerial and technical personnel requirements in selected industry branches was initiated by the Centre for Industrial Development as a follow-up of the Secretary-General's report on training (see entry No.V.A.). The Centre for Industrial Development in 1966 extended coverage to other industries after the initial studies on cement and fertilizers, which were presented as background documents to the Committee for Industrial Development at its fifth session. In particular, the Centre for Industrial Development, with the assistance of consultants, has completed studies in the following industries: leather and shoes, sugar, glass, metal processing, pulp and papers, and textiles, at a total cost of \$5,000, financed from the consultancy funds available to the Centre. An United States expert under contract to the Centre for Industrial Development, at a cost of \$2,000, undertook an analytical review of the above studies and has prepared the individual studies as well as his own contribution for publication. The volume is expected to be published in 1967. The object of research in this area is to provide a basis for planning of training both at the plant level and at the national level. The studies supplement the work already undertaken in the Centre for Industrial Development on specific industries on technological and economic questions and in the preparation of feasibility studies in the various industrial branches.

V.K.7 CID project:

International Working Party on Training of Economic Administrators of the Developing Countries in Industrial Development

Description:

The report of the Working Party, organized by the Centre for Industrial Development with the co-operation of the OECD Development Centre in Paris during September 1965, as

well as the papers written for the meeting, was prepared for publication in 1966 with the assistance of a Yugoslav expert. The consultant also undertook an analysis of the recommendations adopted by the Working Party with a view to evolving practical suggestions for the implementation. The total estimated cost of the above was \$1,600, financed from the consultancy funds available to the Centre.

8. **UNESCO project:** A seminar on Technical Education with emphasis on operational problems encountered in the execution of UNESCO/UNDP (Special Fund), and UNESCO chief technical advisers participating. This type of intellectual activity will continue in the future, with a view to supplementing the implementation of UNESCO/UNDP (Special Fund) projects in order that they may make a fuller impact on the over-all situation of technical education in member States.

9. Various courses have been organized: under the Danish Technical Assistance contribution (\$48,000) a training course in welding was organized in Copenhagen for technicians from the English-speaking countries of Africa. The second course of this kind will begin in January 1967.

10. Special attention has been given to the organization and consolidation of post-graduate training courses of one academic year's duration. They are mainly designed for scientists and educators from developing countries, and the courses generally have from ten to fifteen participants from these countries. UNESCO's financial contribution is relatively small (between \$3,500 and \$10,000) compared with that of the host organization. However, UNESCO's participation acts as a catalysing agent for the courses.

In Japan and the Federal Republic of Germany, for instance, a course in chemical engineering is being organized; in Romania, there is one in petroleum geology and chemistry; in Italy, there is also one in petroleum technology; in Spain, a course in automation is being organized, and in Argentina, one in metallurgy. Other post-graduate training courses of a similar nature are now being prepared.

V.K.11

UNESCO is the Executing Agency for forty-four operational UNDP (Special Fund) projects concerning technical schools for the preparation of technicians and engineers and for the training of technical teachers. A description of some of these projects follows.

V.K.12.

Faculty of Engineering, University of Concepción, Chile

This project has been established to improve the teaching of engineering at the University of Concepción in southern Chile. Under it, the laboratories have been equipped and the Faculty of Engineering has undergone an important academic reform. The project will come to an end in December 1967. The Concepción area has important industries, and the graduates are further contributing to their improvement. An amount of \$1,092,281, was allocated for this project.

V.K.13.

Industrial University of Santander, Bucaramanga, Colombia

This project has been in operation since 1962. It was designed to prepare mechanical, electrical, chemical and metallurgical engineers. Emphasis has been given to laboratory and application aspects in the teaching of engineering. The Industrial University of Santander caters not only for the province of Santander, for about half its enrolment comes from all over Colombia. The results of the United Nations assistance amounting to \$1,605,489 are now becoming evident after four years of operation, with the project ending in March 1968.

V.K.14

School of Engineering, National University of Bogotá, Colombia

Assistance to this institution is geared to improving the training of sanitary engineers as well as to some specific fields of civil engineering such as transportation planning and highway construction. This school is the largest engineering training institution in the country. Fields are chosen for assistance with the purpose of developing the urban areas of the country and meeting the needs of

these areas with regard to sanitation and communications. An amount of \$640,177 was allocated for this project.

V.K.15.

National Polytechnic School, Quito, Ecuador

This project, begun in 1961, has transformed the National Polytechnic School into a high-quality, well-equipped engineering institution at university level. Under the project, the school moved into new functional buildings in an ample campus, has been totally equipped, and has started new specializations such as mechanical engineering, electronics and textile engineering. The academic reform has been equally impressive, especially with regard to the provision of full-time staff, co-ordination of courses and emphasis on laboratory work. The graduates will constitute the backbone of industrial development in a country, which is primarily agricultural. An amount of \$1,547,405 has been allocated for this project.

V.K.16

School of Technology, National Engineering University, Lima, Peru

This school operates under the "sandwich" system by which students are given alternate periods of training in industry and studies in the school. Courses are of four years' duration (four semesters in industry, four at school). The first graduation will take place in 1967. So far, the project has had exceptional success in the training of operational engineers in co-operation with industry in the region. An amount of \$1,170,371 has been allocated for this project.

V.K.17

Faculty of Engineering, University College, Nairobi, Kenya

Originally started in 1956 as the Royal Technical College of East Africa, the University College, Nairobi, now trains civil, electrical and mechanical engineers as well as land surveyors for the region comprising Kenya, Tanzania, and Uganda. The five-year UNESCO/UNDP (Special Fund) project,

begun in 1963, is for the purpose of expanding and improving the Faculty of Engineering for the training of professional engineers to meet the needs of industry, government and research in East Africa. The original UNDP (Special Fund) allocation was for \$832,600.

V.K.18.

Kenya Polytechnic, Nairobi, Kenya

The Polytechnic has been established separately from the University College to provide Kenyan technicians to meet the manpower requirements of the country. The UNDP (Special Fund) provides \$1,309,207 for this six-year project begun in 1963.

V.K.19.

Faculty of Engineering, University of Lagos, Nigeria

This UNESCO/UNDP (Special Fund) project brought in 1964 a Faculty of Engineering to the new University of Lagos to provide undergraduate instruction in civil, electrical and mechanical engineering. The University of Lagos was established to provide an institution of higher education to the highly populated region in and around Lagos. The UNDP (Special Fund) provides \$1,149,850 for this five-year project.

V.K.20.

Uganda Technical College, Kampala, Uganda

Started in 1962 this is a six-year project. The college is an integral part of the national plan for the development of technical and engineering education in Uganda. A recent amendment to the plan of operation provides funds for courses for the Higher Diploma in several engineering fields, in addition to the technician's courses already established. The total UNDP (Special Fund) allocation now amounts to \$1,325,900. Recent affiliation with the University of Strathclyde, Glasgow, Scotland, permits even more advanced studies pending the future development of full engineering degree courses in Uganda.

V.K.21

College of Advanced Technology, Tripoli

The college started its operation in 1960 with the purpose of training electrical mechanical and civil engineers as well as food technologists. It is envisaged that the college, once fully established, should have an annual output of approximately thirty graduates. The UNDP (Special Fund) assistance, a total contribution of about \$1,238,000, will continue until mid-1968.

The example of the College of Advanced Technology shows strikingly how a project which seemed ambitious at first has proved not only fully justified but even too small in relation to industrial development. This progress would have been seriously hampered had the college not been established when it was.

V.K.22.

High Technical Institute, Baghdad, Iraq

Prior to the establishment of this Institute, the country lacked facilities for the training of technicians. Bearing in mind the importance of this group for the country's industrialisation, the Institute was established in 1961 with departments of mechanical, electrical, automobile, and building and construction engineering.

Industrial development during the time of the project operation has been such that the need for technical personnel will exceed the output of the Institute.

A two-year extension of assistance is under consideration to ensure that the Institute will become self-supporting and make the full impact on economic development. The amount provided by the UNDP (Special Fund) during a period of seven years of assistance to the Institute will then have totalled approximately \$1,162,000.

V.K.23.

Middle East Technical University, Ankara, Turkey

The UNDP (Special Fund) project commenced in 1960, though assistance was given to this institution originally through the United Nations Technical Assistance Programme beginning

in 1958. Approximately 340 engineers have so far been graduated from METU. In addition considerable progress has been made with respect to technological research. The first UNDP (Special Fund) project which catered for the establishment of the School of Engineering and the School of Architecture has been supplemented by a second project which became operational in 1966. The objective of this second phase is to strengthen and further develop the departments of electrical, mechanical, mining and chemical engineering at the Faculty of Engineering. The total UNDP (Special Fund) contribution has for the first phase of assistance been approximately \$1,988,000, and will amount to \$1,643,000 for the second phase.

The development of METU from the small beginnings under the UNDP (Technical Assistance) programme to its present magnitude with approximately 2,200 enrolled students demonstrates the need for multiphase assistance to projects in technological training and research, until the feedback of former students renders an institution fully self-supporting.

V.K.24

Faculty of Engineering, University of Malaya, Kuala Lumpur
Malaysia

The main purpose of this project is to improve and expand the facilities of the faculty in order to train professional engineers to meet the manpower requirements of economic and social development in Malaysia. The University of Malaya is the only institution in the country providing university-level courses in engineering. The project is of five years' duration having begun in February 1966. An amount of \$715,250 was allocated for this project by the UNDP (Special Fund).

V.K.25.

Training of Engineering and other Technical Personnel
in Pakistan

This project is designed to upgrade the level of technical training at a number of institutes in West Pakistan. The major contribution in expert services and equipment have been provided for the University of Peshawar, the

Irrigation Research Institute in Lahore, the Rasul School of Civil Engineering and seven other polytechnic institutes. Assistance began in 1962 and will come to an end in August 1967 by which time the facilities for training technicians and engineers for industry in Pakistan will have been substantially improved. An amount of \$2,423,207 has been allocated by the UNDP (Special Fund) for this project.

V.K.26.

Thonburi Technical Institute, Thailand

This was established as a UNDP (Special Fund) project in January 1963 to help meet the ever-growing demand for technicians and practical engineers in Thailand for both industry and government service. The Institute plays an important role in technical education in Thailand as it is one of the few institutions which prepare technical specialists in the mechanical, electrical and building construction fields. Almost 400 students have graduated since March 1964. The amount allocated for this project is \$1,117,446.

V.K.27.

Fine Instruments Centre, Seoul, Republic of Korea

In addition to training technicians to repair, maintain, recalibrate, modify and manufacture fine instruments, the Centre will also undertake direct services to government and industry, and will provide consultative service to industry on methods to be followed in manufacturing and servicing fine instruments. Courses began in September 1966 and the project will continue for five years. An amount of \$1,038,100 has been allocated for this period.

V.K.28.

Institute of Technology, Bombay, India

A ten-year UNDP (Technical Assistance) project (1956-1966), the Indian Institute of Technology, Bombay, for which UNESCO has been the Executing Agency, has played an important role in the industrial and educational history of the country. At present about 2,000 students are at the

Institute, of whom 430 are preparing post-graduate and research courses. From the very beginning the Institute established close and permanent links with industry, the importance of which is fully recognized. The total UNDP (Technical Assistance) contribution amounted to more than \$4,000,000.

V.K.29

Institute of Technology, Inshon, Republic of Korea

Apart from the UNDP (Special Fund and Technical Assistance) projects in Asia, UNESCO was able to assist the Korean Government in establishing the INHA Institute of Technology in Inshon with \$500,000 allocated from the UNKRA residual funds. The project came to an end in June 1966 and the Institute is now fully operative with four departments of electrical construction, machine shop and chemical engineering. A recent government decision resulted in the merging of what was once termed the "UNESCO Department" and the INHA Junior College. This will give enhanced status to the graduates of the technical departments, who will now have a regular junior college qualification, and also to the profession of technician in the country.

V.K.30.

Chittagong Polytechnic Institute, Pakistan

The Chittagong Polytechnic Institute in East Pakistan is designed to help meet the increasing demands made by industry and the Government for Technicians and for production and maintenance engineers in a number of technical fields. The project began operations in 1963 and is expected to be completed in 1968. Among other things, project facilities are being used in the training of a group of technicians to work in the new steel plant in the Chittagong area. An amount of \$909,400 was allocated by the UNDP (Special Fund) for this project.

V.K.31.

National Institute of Building Construction and Public Works, Kinshasa, Democratic Republic of the Congo

This Institute is part of the scheme to train high-grade technicians essential for the economic and social development of the Democratic Republic of the Congo. In

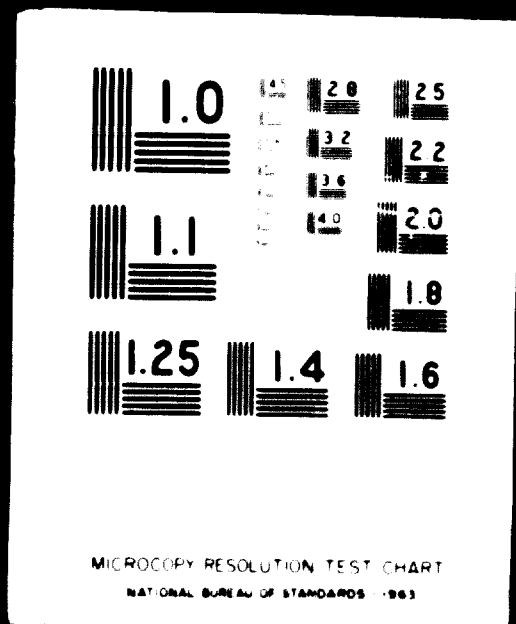


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We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche.

particular it trains technicians primarily destined for public services in a field where there are at present few qualified employees. The project, which started in 1963, runs until 1969 with UNDP (Special Fund) support of about \$1,000,000. At present the Institute also provides a transitional preparatory year but with the expected improvement in secondary education this can later be dropped.

V.K.32.

National Mining Institute, Bukavu, Democratic Republic of the Congo

Of particular importance to the Congo economy, this Institute provides training for technicians in mining, geology and prospecting to meet the urgent needs of the Government and of the private mining industry. The project started in 1964 and the amended plan of operation involves a UNDP (Special Fund) allocation of about \$1,590,000. The present project ends in 1969 but a second UNDP (Special Fund) project is already being discussed. The new project involves the training of Congolese teachers and the organization of applied research in building construction, public works and mining.

V.K.33. CID project:

Fellowship programmes

Description:

The Centre for Industrial Development provided substantive services in the selection, placement and preparation of a study programmes for about 250 fellowships awarded in 1966 in the various fields of industrial development. The fellowships were financed by the regular programme of technical assistance, the UNDP and funds in trust, at a total cost of approximately \$762,000.

Chapter VI

ACTIVITIES BY BRANCHES OF INDUSTRY

A. Iron and Steel

VI.A.1 ECA project: Demand for Steel in the Maghreb Countries

ECA undertook a survey of the long-term demand for steel in the Maghreb countries during 1966. The report of this survey has been made to the Maghreb Committee.

VI.A.2 ECA project: West African Interim Committee on Iron and Steel

For the second meeting of the West African Interim Committee on Iron and Steel, the ECA submitted the following documents:

- (a) Proposals for the Establishment and Operation of Iron and Steel Works in the Subregion (WAC/IRON/7 & 7 (a)/Rev.1);
- (b) Proposals for the Establishment of an Iron and Steel Authority (WAC/IRON/9).

VI.A.3 ECAFE project: Possibilities of Integrating Steel Production in Groups of Small Producer and Non-Producer Countries of the ECAFE Region

Authority: Metals and Engineering Sub-Committee, tenth session, 1964; Asian Conference on Industrialization, 1965; Commission, twenty-second session, 1966.

Description: A secretariat paper (I & NR/AIDC.1/13) presented to the first session of the Asian Industrial Development Council, to assist ECAFE countries in the promotion of interregional and intra-regional co-operation for the development of iron and steel industries in suitable locations.

This study:

- (a) Worked out a series of steel production targets for five-year periods from 1970 to 1985 in relation to forecasts and targets of steel consumption in these countries for the period. Per capita consumption was also forecast for the five-year period from the consumption figures on the basis of an estimated annual growth in population of 2.5 to 3 per cent;
- (b) Reviewed production capacities of the existing steel plants, new steel plants under construction and the estimated aggregate production capacity of these plants in 1970;
- (c) Identified problems faced by the small producer and non-producer countries in the region, i.e., limited domestic markets, lack of raw materials, capital and trained personnel, in the way of the development of large-scale iron and steel plants;
- (d) Discussed the need for planning a long-range (1970-1985) steel development programme in these countries, and outlined a possible approach to developing a progressive and competitive iron and steel industry in some of these countries which might agree to group together by:
 - (i) the establishment of a few large-scale integrated semi-integrated steel plants by pooling markets, resources, raw materials, transportation facilities, capital and skills, and
 - (ii) specialization in manufacture of steel products in each of the large-scale plants that may be established;
- (e) Outlined four case studies of possible groupings of countries which indicated sizes of plants, type of products to be manufactured for reasons of geographical contiguity and viability of joint markets, etc.;

- (f) Discussed the importance and the need for comprehensive feasibility reports before undertaking the establishment of complex iron and steel projects.

The Asian Development Bank might be interested in considering suitable projects of a regional character which could be developed with the Bank's assistance. This study is therefore timely and appropriate.

Duration:

January - September 1966.

Estimated cost and source of funds:

Regular ECAFE budget for established posts. Two professional officers worked on the project.

VI.A.4

ECAFE project: Pilot Plants for Metallurgical Industries

Authority:

Metals and Engineering Sub-Committee, tenth session, 1964; Asian Conference on Industrialization, December 1965; Commission, twenty-second session, 1966.

Description:

The secretariat prepared a paper on the above subject (I&NR/AIDC.1/14) for presentation to the first session of the Asian Industrial Development Council, for the purpose of accelerating the development of the ferrous industries in the countries of the region by providing advice and assistance in the investigations and planning.

The study:

- (a) Reviewed the vital role which pilot plants have played in the development of new techniques of iron and steel production and ore preparation in both the developed and developing countries. Unwise investments and the risk of technical and economic failures could be avoided or minimized by comprehensive pilot plant tests and investigations;
- (b) Discussed the importance of pilot plants for the development of alternative methods of iron and steel production in the ECAFE countries which are deficient in metallurgical coals but which are endowed with abundant supply of other hydrocarbon fuels such as natural gas and oils;
- (c) Described the various alternative processes in iron and steel-making, i.e., electric smelting,

low-shaft furnace, direct reduction, oxygen converters etc. and emphasized the need for comprehensive pilot plant tests and investigations before arriving at a decision for the choice of a specific process;

- (d) Identified the various factors to be taken into consideration in respect to the size, type and location of pilot plants for metallurgical industries in the ECAFE region. Specified the possible location of such plants in some countries in the region, i.e., in existing laboratory facilities or manufacturing plants where activities of a like nature are being undertaken, to reduce capital investment, cost of supervision and overhead etc.

Duration: January - September 1966.

Estimated cost and source of funds: Regular ECAFE budget for established posts. Two professional officers worked on the project.

VI.A.5 ECE project: Long-Term Trends in the Competitive Use of Steel in Comparison with Other Materials

Authority: Steel Committee, sixth session, September 1961.

Description: A study evaluating the current situation and long-term trends in the competitive use of steel in comparison with aluminium, plastics, timber, glass, concrete, asbestos-cement, fibreboard and particle-board. The study will be published in 1966.

VI.A.6 ECE project: Economic Aspects of Continuous Casting of Steel

Authority: Steel Committee, twenty-eighth session, September 1962.

Description: A study on the economic aspects of continuous casting of steel which permits semi-finished steel to be produced without a number of intermediary and costly operations. The secretariat is preparing a first draft of the study for the meeting of the ad hoc Group of Experts scheduled to be held in September 1966.

Duration: It is expected that the study may be completed in the course of 1967.

VI.A.7

ECE project: The World Market for Iron Ore

Authority:

Steel Committee, twenty-ninth session, March 1963.

Description:

Study co-sponsored by the Centre for Industrial Development and prepared in co-operation with other regional economic commissions, for submission as background material to the International Symposium on Industrial Development.

The study comprises an analysis of supply and demand for iron ore as well as the movements in international trade.

It will contain a discussion of prospects for the world market for iron ore in the years 1970, 1975 and 1980. These parts, and the work to be undertaken on the remainder of the study, were discussed in detail by the second meeting of the ad hoc Group of Rapporteurs on the World Market for Iron Ore, which met in April 1966.

VI.A.8

ECE project: World Trade in Steel and Steel Demand in Developing Countries

Authority:

Steel Committee, twenty-ninth session March 1963.

Description:

A study prepared for submission as background material to the International Symposium on Industrial Development. The ad hoc Group of Rapporteurs at its first meeting in November 1965 agreed on an outline and methods of work for the implementation of the study. A second meeting to discuss a first draft will be held in November 1967.

VI.A.9

ECE project: Productivity in the Iron and Steel Industry

Authority:

Steel Committee, twenty-sixth session, September 1961.

Description:

A report on international comparison of labour productivity in the iron and steel industry was prepared pursuant to the guidelines given by the ad hoc Meeting of Experts on Productivity. The study is being circulated to Governments for comments and will be published after the comments have been received.

The Steel Committee decided on new work dealing with the factors affecting labour productivity in the iron and steel industries of the participating countries.

VI.A.10 ECE project: Automation in the Iron and Steel Industry
Authority: Steel Committee, thirty-third session, September 1965.

Description: A report on the above subject (ST/ECE/STEEL/13) has been completed and published, and a new review should be scheduled for publication in 1967.

VI.A.11 ECE project: Economic Aspects of Iron Ore Preparation
Authority: Steel Committee, twenty-sixth session, September 1961.

Description: The study, prepared in 1965, reviews the trends in iron ore preparation and contains comparison and evaluation of methods and techniques of iron ore preparation and of their economic efficiency for smelting. This study, together with a discussion of problems encountered in the developing countries, will be submitted as background material to the International Symposium on Industrial Development.

IV.A.12 ECE project: Review of the European Steel Market

Authority: Steel Committee.

Description: Annual publication which deals with trends in the world steel market, consumption and demand in Europe, external trade, production of pig-iron, crude steel and finished steel, the trend of prices, the growth capacity, raw materials development, current trends and future prospects.

The provisional version for 1965 has been prepared for submission to the Working Party of the European Steel Market at its September 1966 session.

Duration: The final report will be published at the end of 1966.

VI.A.13 ECE project: Quarterly Bulletin of Steel Statistics for Europe, and A Yearly Bulletin of Statistics on World Trade in Steel

Authority: Steel Committee

Description:

The Quarterly Bulletin provides statistics on production of raw materials, crude steel and finished steel, consumption of raw materials, foreign trade, movements of scrap, consumption of energy, and steel deliveries to consuming industries. Vol. XVI, No.4, containing annual figures for 1965, has been published, while Vol. SVII, No.1 is under preparation;

The Yearly Bulletin of Statistics on World Trade in Steel provides detailed statistics on exports of main categories of semi-finished steel products, by regions and countries of destination, for the twenty major steel exporting countries of the world. The 1965 issue will be out at the end of 1966.

VI.A.14

CID project: Iron and Steel Manual

Authority:

Committee for Industrial Development, sixth session (E/4065, para. 70).

Description:

A manual to consolidate actual data, experience and information in a synoptic way so as to help countries to make decisions concerning expansion of the iron and steel industry. The manual will help UN experts in the field advising developing countries. It will also serve as a background document to guide United Nations experts working in the field and for developing countries in particular.

The manual will cover world trends in trade and production of iron and steel, recent developments in products and technology, investment and production factors, location factors, size, and economies of scale. A draft is already under discussion but considerable changes therein, further research and studies are required to complete it. The most important parts of the manual will be presented at the Second Iron and Steel Symposium to be held in 1968.

Duration:

The project was initiated in 1966; it is expected to be completed in 1969.

Estimated cost and source of funds:

United Nations budget.

VI.A.15

CID project: Situation, Problems and Prospects of Main Industrial Sectors

Authority:

E/4203; General Assembly resolution 1940 (XVIII);
Economic and Social Council resolutions 1030C (XXXVII)
and 1081 (XXXIX).

Description:

Preparation of documentation for the International
Symposium on Industrial Development.

Three types of documents are being prepared on the
key industry sectors; background documents, summary
papers and issue papers, relating to the following
industry sectors: iron and steel, non-ferrous metals,
engineering, fertilizers, textiles, basic and
petrochemicals, food, building materials and construction
industries.

These papers, giving a synoptic view of the recent
developments, current situation and future trends
and prospects relating to each key industry sector,
will help to formulate concrete suggestions and
recommendations for policies and actions by
developing countries, industrially advanced countries
and the United Nations agencies.

The work is being undertaken in co-operation with
other United Nations agencies and expert consultants.

Duration:

October 1965 - April 1967.

Estimated cost and
source of funds:

International Symposium Funds.

IV.A.16

ECA project: West African Interim Committee on Iron and Steel

Following the Conference on Industrial Co-ordination
in West Africa held at Bamako, a West African
Interim Committee on Iron and Steel was established.
The first meeting of the Committee was held in 1965
to discuss inter alia, concrete steps which the
countries of the subregion should undertake towards
establishment of a West African iron and steel complex.
The second meeting was held at Freetown in April 1966

to consider the location of the first West African integrated iron and steel plant and the establishment of a West African iron and steel authority. The Niamey meeting in November 1966 on economic co-operation in West Africa, which considered the report of the Expert Committee on Iron and Steel, recommended the establishment of a body on iron and steel which would be a subcommittee of the Committee on Industry envisaged within the intergovernmental machinery for economic co-operation in the subregion.

- VI.A.17** ECE project: Short and Long-Term Trends in the Production and Consumption of Stainless Steels
- Authority:** Steel Committee, thirty-third session, September 1965.
- Description:** A first meeting of the ad hoc Group of Experts was held in December 1965. The meeting agreed on an outline and on the material required for the preparation of the study. Countries were asked whether they would be in a position to furnish the required information.
- VI.A.18** CID project: Second Iron and Steel Symposium
- Authority:** Committee for Industrial Development, sixth session (E/4065, para. 70).
- Description:** The initiation of studies on and discussion of the techno-economic principles and methods of development of the iron and steel industry in the developing countries. Collection and dissemination of relevant information concerning the technology and economics of the iron and steel industry and contribution to technical assistance. The Symposium is intended to deal with the current situation and future trends in the world iron and steel industry with emphasis on recent trends in production technology and with specific economic considerations in the development of the industry sector in the developing countries. Studies presented at the Symposium will be incorporated in part in the Iron and Steel Annual, prepared by the Metallurgical Unit of the Industries Section of the CID.
- Duration:** 1966-1968.
- Estimated cost and source of funds:** \$150,000 financed from technical assistance funds.

IV.A.19

ECA project: Integrated Iron and Steel Plant in West Africa

An ECA team of three staff members visited Mauritania and Guinea in 1966 to investigate the comparative advantages for the location of an integrated iron and steel plant in West Africa.

B. Non-ferrous Metals, including Aluminium

VI.B.1

ECA project: Aluminium Industry in Central and West Africa

ECA, with the assistance of a consultant, prepared a study entitled "Report on the Aluminium Industry in Central and West Africa" (E/CN.14/INR/137) for the Conference on Economic Co-operation in West Africa, held in Niamey. The study covered two subregions by reason of the wider markets and the deposits of bauxite found in both the Central and West African Subregions.

VI.B.2

ECA project: Copper, Lead and Zinc Industries in West Africa

For the Conference on Economic Co-operation in West Africa, ECA, with the assistance of consultants, prepared a study entitled "Summary Report on Prefeasibility Study of Copper, Lead and Zinc Industries in West Africa to 1980" (E/CN.14/INR/138). The study surveys the present markets for copper, lead and zinc in the fourteen countries of the West African subregion, together with estimated changes in demand through 1980; reviews the potential development of these resources of the extraction feasible both for regional consumption and export, and considers the location, size and output of possible new national or multinational plants to produce mill or foundry items or possibly finished goods of copper, lead and zinc.

VI.B.3

ECAFE project: Possibility of Developing the Aluminium Industry in the ECAFE Region through National, Regional and International Efforts

Authority:

The first Asian Conference on Industrialization (Manila, December 1965) recommended that the ECAFE secretariat undertake studies and investigations of the feasibility of six specific joint industrial schemes. Aluminium was one of them.

Description:

A paper (I&NR/AIDC.1/10) prepared by the ECAFE secretariat and presented to the first session of the Asian Industrial Development Council examined in broad quantitative terms the needs of the ECAFE countries for aluminium. The consumption of aluminium in the region is increasing at 11 per cent

per annum. The production capacity was expected to increase from about 400,000 tons in 1964 to 900,000 tons in 1965. The extraction of alumina and the reduction to aluminium are large-scale operations involving heavy capital outlay. The minimum economic size of a reduction plant is 30,000 to 35,000 tons per year. The most important factor is perhaps not the availability of raw materials but of electric power at low rates of the order of 3 US mills per KW or lower. With these considerations in mind, the above-mentioned paper examines the possible alternatives for setting up aluminium reduction plants. The possibilities of producing low-cost electric power in Iran and Brunei, with natural gas as fuel for power generation, and in the countries participating in the Mekong project where cheap hydro-power can be made available, naturally come to mind. The Mindanao Island of the Philippines, where cheap hydro-power can be generated, is also mentioned.

Duration:

The study was started in July 1966 and completed in August 1966.

Estimated cost and source of funds:

About two man-months provided from regular ECAFE budget.

VI.B.4

CID project: Situation, Problems and Prospects of Main Industrial Sectors.

See entry No. VI.A.15.

VI.B.5

CID project: Morocco - Metallurgical Industry

Authority:

Programme of Special Industrial Services.

Description:

Request from the Government of Morocco of 25 August 1966 to provide technical assistance at the plant level in connexion with the metallurgical industry based on RIF mines deposits, metallurgical extraction of lead and zinc, and recovery of copper and iron from pyrrhotine ashes.

Implementation of the projects:

- (1) Production of iron ore pellets (840,000 tons per year) from RIF mines iron ore (East Morocco) for export and home consumption (projecting steel plant in Mador);
- (2) Metallurgical extraction of zinc and lead from ores of the Jerada anthracite deposit and others (probably with industrial co-operation with Algeria);
- (3) Recovering of iron and copper from pyrrhotine ashes (Fe-61-63 per cent; Cu-0.9 per cent).

Estimated cost and source of funds:

Programme of Special Industrial Services.

C. Mechanical Engineering Industries, including Manufacture of Plant and Equipment and Machine Tools

ILO project.

VI.C.1

The ILO published the following reports dealing with the metal trades:

- (1) Report I, General Report, Vol. I, Effectiveness Given to the Previous Sessions of the Committee; Vol. II, Recent Events and Developments in the Metal Trades;
- (2) Report II, International Co-operation in Dealing with Manpower, Social and Labour Problems in the Metal Trades in the Developing Countries, and
- (3) Report III, The Role of Employers' and Workers' Organizations in Programming and Planning in the Metal Trades.

The CID co-operated in preparing Report II.

The reports are world-wide in coverage, except Report II, which is devoted mainly to the problems of developing countries.

VI.C.2

ECA project: Engineering Industries in West Africa

ECA prepared for the Conference on Economic Co-operation in West Africa a study entitled "The Development of Engineering Industries in West Africa" (E/CN.14/INR/126).

VI.C.3

ECA project: Motor Vehicle Assembly in West Africa

ECA study on the possibility of motor vehicle assembly in West Africa, prepared by a consultant provided under bilateral aid, makes a diagnosis and prognosis of the automobile market in the fourteen countries of the subregion; reviews the capacity of existing and planned assembly plants; discusses possibilities of extending and/or setting up new truck, passenger car, and bus assembly plants on subregional bases and makes recommendations on the layout of assembly plants.

VI.G.4

ECAFE project: Centres for Imparting Skills for the Development of Metal-Transforming Industries

Authority:

Metals and Engineering Sub-Committee, tenth session, 1964; Asian Conference on Industrialization, 1965; Commission, twenty-second session, 1966.

Description:

The secretariat prepared a paper on the above subject for the first session of the Asian Industrial Development Council with the purpose of accelerating the development of the metal-transforming industries in the countries of the region by providing advice and assistance in the investigations and planning.

The paper:

- (a) Described the various branches included in the metal-transforming industries, i.e. manufacture of metal products, manufacture of machinery (other than electrical); manufacture of electrical machinery, appliances and supplies; manufacture of transport equipment, and the classification of the products in these industries;
- (b) Reviewed the existing structure of the metal-transforming industries in the ECAFE region and its characteristics, indicating that there was generally a limited knowledge of modern metal-transforming techniques and processes and an under-development of metal-transforming industries in the less developed countries;
- (c) Analysed the need for further structural changes in the industry and suggested the establishment of specific metal-transforming industries in some of these less developed countries in the region for the manufacture of machine parts, parts for vehicles, agricultural machinery, hand tools, pumps etc. and eventually the manufacture of light machinery and construction equipment in progressive stages;
- (d) Described the need for "metal development centres" in some of these countries (i) to train personnel not only in the high technical skills to operate machinery and specialized equipment but also in the methods of organization and management of

enterprises; (ii) to give advisory assistance in connexion with specific production problems and the establishment of standards of quality control in the manufacture of engineering products etc.;

- (e) Listed some of the facilities required in the establishment of a metal development centre, i.e. workshops, laboratories and design offices, and the site for such a centre.

Duration: January-September 1966.

Estimated cost and source of funds: Regular ECAFE budget for established posts. Two professional officers worked on the project.

VI.C.5 ECE project: Bulletin of Statistics on World Trade in Engineering Products

Authority: Meeting of Experts on Engineering held pursuant to resolution 9 (XVII) in August 1962; decisions C (XX) and I (XXI) taken by the Economic Commission for Europe at its 1965 and 1966 annual sessions.

Description: The Bulletin covers the exports of twenty-seven countries, representing approximately 99 per cent of world trade in engineering products, broken down into eight product groups and 120 destinations, including also twelve regional subtotals. It is published on a regular yearly basis.

The first issue covered the year 1963 and was published under the symbol ST/ECE/ENG/2; data for the year 1964 appeared under the symbol ST/ECE/ENG/3; data for 1965 will be issued towards the end of 1966.

The Bulletin gives a sufficiently complete picture of world trade in engineering products to be a useful source of information and reference for all those concerned with the analysis and appraisal of market trends and prospects in this field.

VI.C.6 ECE project: Requirements of European Countries in the Process of Industrialization for Engineering Products

Authority: Meeting of Experts on Engineering.

Description:

This study covers production, foreign trade and development plans and programmes of the European countries in the process of industrialization for engineering products.

The following country studies were prepared: Bulgaria, Greece, Romania, Spain and Yugoslavia (documents ENG/CONF/ Working Papers 1, 2, 3 and 5).

At its twenty-first session, the Commission invited the interested ECE member Governments of countries in the process of industrialization who had not yet done so, to designate experts who would co-operate with the secretariat in the assessment of future demand for engineering products in their countries, and requested that this study, when completed, be transmitted to the Centre for Industrial Development as a contribution to the preparations for the International Symposium on Industrial Development.

VI.C.7

ECE project: Engineering Industries and Industrialization

Authority:

CID request to provide background material for the International Symposium on Industrial Development

Description:

With the help of specially qualified consultants, the secretariat is preparing a study which will cover economic structures of the engineering industries and their place in the economy of industrial countries and those in the process of industrialization; the economic aspects of these industries, the main trends in world production and foreign trade of engineering goods; conclusions and recommendations.

VI.C.8

CID project: Situation, Problems and Prospects of Main Industrial Sectors

See entry No. VI.A.15.

VI.C.9

ILO project. The eighth session of the ILO Metal Trades Committee which, like other ILO Industrial Committees, holds periodic meetings, was held in Geneva from 6 to 17 December 1965, and discussed labour problems in the metal trades with particular reference to the three items on its agenda, and on the basis of separate

reports submitted to it on each of these items (see entry No. VI.C.1). Twenty-seven countries from all the regions of the world participated in the meeting. The meeting adopted two sets of conclusions and five resolutions. One of these conclusions dealt with international co-operation in dealing with manpower, social and labour problems in the metal trades in developing countries, and another with the role of employers' and workers' organizations in programming and planning in the metal trades.

VI.C.10

CID project: Group of Experts on the Use of Second-Hand Equipment in Developing Countries

Authority:

Recommendations of the Committee for Industrial Development at its third, fourth, fifth and sixth sessions.

Description:

A meeting of a Group of Experts on Second-Hand Equipment in Developing Countries was held in New York in December 1965. The purpose of the meeting was to study the possibilities of the use of second-hand equipment in developing countries; to determine the role that second-hand equipment, generated in industrialized countries, can play in the economic development of developing nations.

A number of papers were prepared by outside consultants on several aspects of the use of second-hand equipment, and on market research to study the possibilities of the use of second-hand equipment in developing countries. Discussion at the meeting was concerned with determining the availability and suitability of second-hand industrial equipment.

Duration:

1963-1964.

Estimated cost and source of funds:

1965 - \$5,000 for preparation of background papers and consulting services; \$14,000 for meeting of the Group of Experts; 1966 - \$1,500 for implementation of the recommendations of the Group of Experts. United Nations budget.

VI.C.11

CID project: Organization of Repair and Maintenance of Industrial Equipment in Developing Countries

Authority:

Recommendation of the Committee for Industrial Development at its sixth session and approved work programme of the Centre for 1966/67.

Description:

A meeting of experts will be held at Headquarters from 28 November to 9 December 1966 for the purpose of obtaining a thorough understanding of all the factors relevant to the subject as well as factual information on conditions and needs in a number of developing countries, to be used as guidelines for future action. Also to be considered are the collection and dissemination of relevant information concerning the repair and maintenance of industrial equipment as well as contribution to technical assistance.

Production equipment and other industrial equipment in developing countries is frequently idle, not used for the right purpose, or at full capacity, and even damaged beyond salvage for lack of adequate maintenance and repair facilities. Maintenance and repair shops not only should contribute to a considerably better exploitation of capital goods in developing countries but also would be invaluable for the training of technicians and as nuclei for local manufacturing and service industries.

Duration:

January - December 1966.

Estimated cost and source of funds:

\$4,500 for preparation of papers and \$15,000 for the meeting itself United Nations budget.

VI.C.12

CID project: Development of Metal-working Industry in Developing Countries

Authority:

Recommendation of the Committee for Industrial Development at its fourth session and approved technical assistance programme for 1966.

Description:

An Interregional Symposium on the Development of the Metal-working Industry was held in the USSR from 7 September to 6 October 1966. Forty-one

papers were presented at the Symposium, which was attended by about 100 experts from both developing and developed countries. The purpose of the Symposium was to assist developing countries with the solution to economic and technological problems connected with the establishment and development of the metal-working industry in general, and the machine tool industry in particular; to collect the necessary information on modern technology and experience in industrialized countries in the field of metal-working industries and to transfer it to developing countries.

The Symposium contributed to the building up of CID capacities in the field of technical assistance and to the collection and dissemination of relevant information covering the development of this industry.

Duration:

From October 1963 to October 1966; continuing project.

Estimated cost and source of funds:

\$8,000 for preparation of papers; \$12,000 for the Symposium United Nations budget (\$8,000) and technical assistance funds (\$120,000).

VI.C.13

CID project: Technical Assistance in the Field of Mechanical Engineering

Authority:

Regular and Expanded Programmes of Technical Assistance.

Description:

Assistance to developing countries in the field of mechanical engineering industries in connexion with the carrying out of approved technical assistance projects.

Technical assistance under EPTA in mechanical engineering covers projects in the following countries. The number of projects in each country is indicated by the figure in parenthesis:

Afghanistan (2), Argentina (2), Bolivia (1), Burma (1), Chile (3), China (5), Colombia (2), Dominican Republic (2), Ecuador (1), India (11), Iran (2), Iraq (5), Israel (3), Jordan (1), Malaysia (1), Malta (1), Mexico (2), Mongolia (1), Pakistan (1),

Peru (1), Republic of Korea (3), Saudi Arabia (3), Singapore (4), Sudan (1), Thailand (2), Tunisia (3), Turkey (6), Upper Volta (1), Venezuela (1), Yugoslavia (2).

The CID is concerned with the preparation of job descriptions, evaluation of candidates, recruitment of experts, evaluation of periodic and final experts' reports.

Duration: These are continuous projects.

Estimated cost and source of funds: Financed from the Regular and Expanded Programme of Technical Assistance.

VI.C.14 CID project: Technical Assistance in the Field of Electrical Engineering

Authority: Regular and Expanded Programme of Technical Assistance.

Description: Assistance to developing countries in the field of electrical engineering industries in connexion with the carrying out of approved technical assistance projects.

Technical assistance under EPTA in the field of electrical engineering covers projects in the following countries. The number of projects in each country is indicated by the figure in parenthesis: Bulgaria (1); Chile (1); Dominican Republic (1); India (1); Iran (2); Israel (1); Mexico (1); Republic of Korea (2); Singapore (2); Turkey (1); Yugoslavia (1).

The CID is concerned with the preparation of job descriptions, evaluation of candidates, recruitment of experts and evaluation of periodic and final reports of experts.

Duration: These are continuous projects.

Estimated cost and source of funds: EPTA.

VI.C.15

CID project: Bulgaria - Establishment of a Research Institute for Instrument Design (Part I)

Authority:

Request of the Government of Bulgaria; approval under the programme of Special Industrial Services.

Description:

Assistance to Bulgaria in the creation of a Research Institute for Instrument Design which will treat the problems in the field of measuring instruments and devices for automation and research and design of prototypes.

The Government of Bulgaria wishes to increase the application of measuring instruments and devices for automation of production. The assistance includes a number of experts in various fields, scholarships and procurement of necessary laboratory equipment. The project is divided in two parts. Part I is concerned with the furnishing of a number of short-term top-level experts and some laboratory equipment under the Special Industrial Services programme. It is proposed to carry out part II under the UNDP (Special Fund) programme.

During the current period three experts in the above fields will be recruited under the Special Industrial Services programme for a period of four to six months, and procurement of the necessary laboratory equipment is being undertaken.

Duration:

Initiated in October 1966.

Estimated cost and source of funds:

\$47,000 (proposed); programme of Special Industrial Services.

VI.C.16

CID project: Chile - Survey Mission on the Development of Engineering Industries

Authority:

Request of the Government of Chile; approval under the programme of Special Industrial Services.

Description:

Technical assistance at the plant level to assist in connexion with the development of mechanical engineering industries (boiler-shop products,

machine tools, automotive parts etc.): A survey will be made of existing plants and advisory services provided on improvement of production processes.

The Chilean mechanical engineering industries manufacture boiler-shop products, structural products and mechanical equipment having an annual total value of approximately \$40 million. About 5,000 skilled plant workers and 2,000 others are employed. A mission is being sent to Chile to assist the Government in a survey of this industry and to make suitable recommendations for improvements in manufacturing techniques.

Duration:

Initiated in September 1966.

Estimated cost and source of funds:

Seventeen man-months of expert services; programme of Special Industrial Services.

VI.C.17

CID project: India - Assistance to the Chemical and Engineering Industries Sectors

Authority:

Request from the Government of India; approval under the programme of Special Industrial Services.

Description:

Through the UNDP, the mission will assist the Government in drawing up plans for international assistance in the development of a number of sectors of the mechanical and electrical engineering industries with a view to manufacturing products for export.

The mission will consider, under engineering industries, the following subsectors: rolled steel products; ferrous castings and forgings, cutting, small and other hand tools, dies, jigs and fixtures and electronic components, including transistors and diodes.

In the chemical industry sector the mission will consider: organic and inorganic chemicals, pulp and paper, ceramics, dyes, tyres, tubes and other rubber products.

Duration:

January 1967-February 1967.

Estimated cost and source of funds:

Programme of Special Industrial Services.

VI.C.18

CID project: Iran - Development of Mechanical and Electrical Engineering Industries

Authority:

Request of the Government of Iran; approval under the programme of Special Industrial Services.

Description:

Assistance to the Ministry of Economy of Iran in the evaluation of a number of plant project reports; advice on the establishment of a plant, and assistance concerning the improvement of operation of existing plant in the fields of mechanical and electrical engineering industries.

The Iranian Government is engaged in the establishment and development of a number of mechanical and electrical engineering plants. The assistance is requested in connexion with the establishment of a machinery manufacturing plant in Arak, a metallurgical and engineering plant in Tabriz, a heavy electrical machinery plant in Arak, and the improvement of operation of a railroad workshop. The assistance concerns evaluation of project reports, advice on establishment, appraisal of the cost of equipment and machinery, and related problems.

The CID is concerned with the recruitment of a team of experts or consulting engineering firms.

Duration:

From October 1966 to July-September 1967.

Estimated cost and source of funds:

Twelve to fifteen man-months of experts' services; programme of Special Industrial Services.

D. Agricultural Machinery and Equipment

VI.D.1

ECAFE project: Requirements of Agricultural Inputs

The Secretariat, pursuant to Commission resolution 72 (XXII) has commenced a study of the requirements and availability for the next five years of agricultural inputs such as farm equipment in the countries of the region and the scope and means for increasing its production. The study is expected to be completed in 1967.

E. Electrical Machinery

VI.E.1

ECAFE project: Electrical Manufacturing Industry and Standardization in the Field of Electric Power

Authority:

Sub-Committee on Electric Power, Committee on Industry and Natural Resources and Commission.

Description:

The purpose of the project is to develop electrical manufacturing industry and to standardize equipment, methods and practices in the field of electric power in the developing countries of the region. It is related to programmes of electric power development.

The Expert Working Group on the Role and Application of Electric Power in the Industrialization of Asia and the Far East (July 1965) gave considerable attention to the development of industries for the manufacture of electrical machinery and other electrical materials. As electrical manufacturing industries would help to speed up electric power development, it was felt that developing countries of the region should give serious thought to the possibility of establishing them. There will undoubtedly be many difficult and important problems to solve, such as the large capital outlay needed; the acquisition of highly specialized and sophisticated technology; technical collaboration with manufacturers in the developed countries; the development of subsidiary industries in the country to feed processed raw materials such as special steels, large castings and forgings, copper and aluminium etc., and the training of design engineers and technicians as well as management personnel. Perhaps it would be worth while to draw up a phased programme under which the manufacture of such light electrical equipment as is usually needed for distribution systems - distribution transformers, switch gear, conductors etc. - will be undertaken in the initial stages, to be followed by heavier heavier equipment in due course.

The importance was stressed of introducing as far as possible uniform standards for electrical equipment. This can largely be achieved by
(a) the adoption of metric dimensions and weights

by all countries, (b) adherence to the standards recommended by the International Electrotechnical Commission, subject to minimum deviations to suit local conditions, (c) reduction to a minimum of types, ratings and sizes of plants and equipment (d) adoption of common technical and performance specifications. It was recommended in this connexion that an expert committee should be appointed to review the prevailing standards in the countries of the region and to suggest measures which should be taken to bring about uniform standards in equipment, methods and practices.

Duration:

Meetings may be convened in the future on standardization of equipment, methods and practices in the field of electric power and on development of electrical equipment manufacturing industry.

Estimated cost and source of funds:

Co-operation of BTAC may be sought for holding the meetings.

VI.E.2

CID project: Development of Electrical Equipment Industry in Developing Countries

Authority:

Approved work programme of the Centre for Industrial Development for 1966/67.

Description:

The purpose of the project is to make available data necessary to assist developing countries in solving technological and economic problems in the establishment and development of the electrical equipment industry. The CID is preparing regional background material for future regional seminars on the subject and as a contribution to the technical assistance projects in this field.

The influence this industry has on the development of numerous other industries gives it particular importance in the industrialization of developing countries.

Duration:

From January 1966; continuing project.

Estimated cost and source of funds:

\$3,750; United Nations budget.

F. Shipbuilding

No reports were received for projects under this heading. However, the International Labour Organization has submitted the following on the subject of the Shipping Industry.

ILO projects.

VI.F.1

In the October 1965 issue of the International Labour Review the ILO published the article "Technological Change and the Merchant Seaman", which reviews the labour and other social problems arising from increased mechanization and other changes on board merchant vessels.

VI.F.2

An article on "The System of Remuneration in the Soviet Merchant Marine", published in the International Labour Review in October 1966, gives an account of the system of remuneration for Soviet merchant seamen as revised in 1960, including current wage rates, differentials and bonuses, and draws attention to defects in the former system.

VI.F.3

The Joint ILO/IMCO Committee on the Training of Seafarers in the Use of Aids to Navigation and Other Devices, which met in December 1964, considered a report on this question prepared by the ILO and adopted a document for guidance relating to the training of seafarers in navigational aids and safety equipment.

VI.F.4

The Second Asian Maritime Conference of the ILO was convened in Tokyo during 1965. The Conference considered three reports covering various aspects of the conditions of work and life of Asian seafarers, which were prepared by the ILO and adopted a number of resolutions on such questions as welfare, social security and recruitment.

VI.F.5

A high-level seminar on the labour problems resulting from automation and technological changes on shipboard was organized in Denmark from 13 to 21 September 1965 by the International Institute for Labour Studies in co-operation with the ILO. The forty-one participants

and five observers who attended this seminar included leading representatives from shipbuilding, shipowner and seafarers' quarters in both industrialized and developing countries as well as independent experts and scholars. The papers presented at the seminar will be published in February 1967 by Macmillan and Co. Ltd., London in a book entitled Automation on Shipboard.

VI.F.6

The fourth session of the Joint ILO/WHO Committee on the Health of Seafarers was held in 1965, and adopted an International Medical Guide for Ships. Included in the text is the medical section of the International Code of Signals for giving medical advice to ships at sea, which was drawn up by ILO and WHO in collaboration with IMCO.

VI.F.7

At its 50th session in 1966 the International Labour Conference adopted Conventions concerning Accommodation on Board Fishing Vessels and Vocational Training of Fishermen, and a Recommendation concerning Fishermen's Certificates of Competency. These instruments lay down minimum standards in regard to the accommodation to be provided for crews on board fishing vessels, and training methods and standards, and recommended practice in relation to the issue of certificates of competency for fishermen. At the same session the International Labour Conference adopted a resolution calling for the early adoption of a code of practice concerned with safety on board fishing vessels for joint consideration by the ILO, IMCO and FAO - a project on which co-operation is at present taking place between the three organizations concerned.

VI.F.8

The questions of automation on board merchant ships, vocational training of seafarers, conditions of employment of Asian seafarers, and seafarers' health and welfare will be studied by the Joint Maritime Commission at its 20th session in 1967, and it is expected that concrete proposals will be put forward for action by the ILO on these subjects.

VI.F.9

Since 1960, ILO experts have provided technical advice on the recruitment and decasualization of dock workers and other port labour questions to the port industries of Malaysia, Sudan and certain other Asian countries.

VI.F.10

Fellowships for the study of labour administration in the inland water transport industry were provided by the ILO to two officials of the Pakistan Government during 1964.

VI.F.11

During 1965 an ILO expert prepared a feasibility study on the establishment in East Pakistan of a training centre for masters, serangs and deck personnel of the inland water transport industry.

G. Transport Equipment

VI.G.1

CID project: Development of the Automotive Industry in Developing Countries

Authority:

Approved work programme of the Centre for Industrial Development for 1966.

Description:

The purpose of the project is to assist developing countries in the solution of economic and technological problems in connexion with the establishment and development of the automotive industry; to collect necessary technical information on the experience of developed countries in that field and to transfer it to developing countries.

The project will contribute to the building up of the Centre's capabilities in the field of technical assistance.

It is expected that between forty and fifty papers will be prepared by consultants. During 1966, eight studies were contracted for; four have been completed and received by the Centre. Four more should be completed by 1 January 1967. It is expected that twelve to sixteen studies will be prepared during 1967.

A Symposium on the Establishment and Development of the Automotive Industry in Developing Countries is planned by the Centre for 1968 in Argentina.

Duration:

From January 1966 to October 1968.

Estimated cost and source of funds:

\$4,000 in 1966; \$8,000 in 1967 for preparation of papers; \$3,000 for consultancy service in 1968, and \$120,000 for Symposium in 1968. Preparation of four papers and consulting service from United Nations budget; Symposium and preparation of additional twenty-six papers from technical assistance funds.

H. Petrochemical Industries

VI.H.1

ILO project. The ILO prepared four reports dealing with labour problems in the petroleum industry for the seventh session of the Petroleum Committee held in October 1966. Apart from a General Report (in two volumes), two technical reports deal with (a) social consequences of structural and technological changes in the petroleum industry, and (b) vocational training for workers and supervisory and technical personnel in the petroleum industry, with particular reference to the needs of industrially less advanced countries. CID contributed a paper supplementing the General Report. The reports are world-wide in scope, but focus attention on the problems in developing countries.

VI.H.2

ECA project: Petroleum Industry in West Africa

ECA prepared a study of the petroleum industry in the West African subregion (E/CN.14/INR/110) for the Niamey meeting. The study discusses the production of crude oil and of refining out in the fourteen countries; estimates present demand for petroleum products and the projected demand through to 1980, and recommends the establishment of a lubricating oil plant of 150,000-tons capacity to serve both the West and Central subregions of Africa.

VI.H.3

ECA project: Chemical Industry in West Africa

ECA made a major study into the broad field of the chemical industry, including petrochemicals, plastics, pharmaceuticals and fertilizers (E/CN.14/INR/109) for the Conference on Economic Co-operation in West Africa, held in Niamey. The study examines the resources available in the fourteen countries of the subregion and the existing market for pharmaceuticals, soap and detergents, perfumes and cosmetics, basic chemicals, such as sulphuric acid, phosphoric acid, caustic soda, chlorine, ammonia and calcium carbide, fertilizers such as ammonium sulphate and superphosphate, explosives, plastics, pesticides, viscose rayon and aluminium sulphate, and possible demand through 1980. It then discusses the feasibility of establishing manufacturing units for these products and makes recommendations.

VI.H.4

ECAFE project: Development of the Petrochemical Industry in the ECAFE Region

Authority:

Interregional Conference on the Development of Petrochemical Industries in Developing Countries.

Description:

The Conference was organized jointly by the Centre for Industrial Development and the ECAFE secretariat with the assistance of BTAO. The Chief of ECAFE's Division of Industry and Natural Resources, acted as the co-director of the Conference.

The ECAFE secretariat contributed a paper based on information furnished by the Governments of the member and associate member countries of the region, and other available information.

The major petrochemical end-products such as fertilizers, plastics, synthetic resins and non-cellulosic man-made fibres, attract attention in the countries with large resources of oil and gas. In order to examine the feasibility of setting up petrochemical plants in the developing ECAFE countries, the paper covered such topics as: appraisal of the present and future markets for major end-products; survey of the source of raw materials for the petrochemical industry; rates and patterns of growth in the petrochemical industry; trade in major end-products; plans for expansion in the petrochemical industry; special features and problems in the development of the petrochemical industry, and scope for regional or international co-operation.

Duration:

April-October 1964.

Estimated cost and source of funds:

About two man-months; ECAFE regular budget.

VI.H.5

GID project: Editorial and Prepublication Review of Studies on Petrochemicals

Authority:

Committee for Industrial Development, third session (E/3781, Annex IV).

Description: A study containing 119 definitive studies on the above subject, to be published in two volumes (about 1,100 pages) early in 1967 for the purpose of disseminating the latest techno-economic studies on petrochemical industries to developing countries. A comprehensive compendium of material for briefing of technical assistance experts.

Duration: Initiated in April 1964; to be completed in April 1967.

Estimated cost and source of funds: \$25,000; United Nations budget.

VI.H.6 CID project: Studies of Selected Aspects of the Petrochemical and Related Industry Sectors

Authority: 1966 work programme, Technological Division, CID.

Description: Follow-up activities of the research and publications from First United Nations Petrochemical Conference, Teheran, November 1964.

- (a) "Notes on the Technical and Economic Aspects of Manufacture of the Intermediates for Polyamides, Polyesters and Acrylic"; CID contribution to the ECAFE Seminar on the Development of the Man-Made Fibre Industry in Asia and the Far East, Tokyo, 28 October-7 November 1966.
- (b) "Recenti Prospettive Nella Ricerca e Nello Sviluppo dell'Industria Petrochimica", articles prepared by a CID staff member for Petrochimica, 1966, No.29, p.10; No.32, p.109; No.33, p.136, and No.34, p.179.

Duration: July 1965-September 1966.

Estimated cost and source of funds: Two man-months; United Nations budget.

VI.H.7 CID project: Chemicals from Petroleum - Recent Industrial Technological Achievements of Significance to Developing Countries (CID/66/1)

Authority: Requested by ILO and included in work programme of Technological Division, CID.

Description: CID contribution to the seventh session of the ILO Petroleum Committee. The study reviews all aspects of recent techno-economic developments of importance to developing countries.

Duration: February-March 1966.

Estimated cost and source of funds: Two man-months;; United Nations budget.

VI.H.8 CID project: Situation, Problems and Prospects of Main Industrial Sectors

See entry No. VI.A.15.

VI.H.9 CID project: Report of the United Nations Interregional Conference on the Development of Petrochemical Industries in Developing Countries (ST/TAO/SER.C/83), Official Records of the Economic and Social Council

Authority: Official Records of the Economic and Social Council, Thirty-sixth Session, Supplement No. 14, annex IV.

Description: Detailed report on the conclusions and recommendations of the First United Nations Interregional Conference on the Development of Petrochemical Industries in Developing Countries, held in Teheran, November 1964. Used for formulating the CID work programme in petrochemicals for 1965 and 1966. Gives the conclusions of the above Conference and recommendations for further action by the United Nations, developing and industrialized countries.

Duration: December 1964-February 1966.

Estimated cost and source of funds: Expanded Programme of Technical Assistance, 1964.

VI.H.10 ILO project. The Petroleum Committee of the ILO held in October 1966 the seventh session already mentioned above. It adopted conclusions on the two technical items on its agenda as well as resolutions providing for further action as regards such problems as job nomenclature, conditions of work and life of petroleum workers, hours of work and freedom of association.

VI.H.11. ECAFE project: Seminar on Man-Made Fibre Industry,
Tokyo/Osaka 28 October - 7 November 1966.

Authority: ECAFE work programme.

Description: The objective of the Seminar was to bring to the notice of the developing countries in the region the modern developments and latest techniques adopted in this industry and to exchange information and experience so as to assist interested countries in planning for the establishment of new plants and expanding existing ones. The Seminar was also to serve the purpose of exploring the possibilities of developing the industry on a regional or subregional basis.

The deliberations of the Seminar covered:

- (a) A broad assessment of the present status of the industry and demand projections for man-made fibres for the future;
- (b) A study of the existing installed capacity to manufacture man-made fibres and plans for development of additional capacity in the future;
- (c) An appraisal of the adequacy of the raw materials resources for the development of the industry;
- (d) A scrutiny of comparative investment and production costs for different types of manufacturing processes and size of plants which may be most suited to the countries of the region, and
- (e) A recommendation for specific national or international measures needed to achieve a speedy development of the man-made fibres industry in the region.

Based on information provided by the Governments of member and associate member countries in the ECAFE region and other information available, the staff of the secretariat and the consultants prepared thirteen papers. They were: the present state of the man-made fibre industry in the ECAFE region, and plans for its development; anticipated total requirements for apparel and industrial fibres in the region

up to 1975; cellulosic fibres; polyamide (nylon) fibres; polyester fibres; acrylic fibres; polyvinyl alcohol fibres; other non-cellulosic man-made fibres; the textile industry in the countries of the region; development prospects and investment needs for the ECAFE region; man-made fibres, their main properties and end-uses in the textile industry; notes on the technical and economic aspects of manufacture of the intermediates for polyamides, polyesters and acrylics, and international and regional co-operation and the development of the man-made fibre industry.

The participants in the Seminar also prepared papers.

The Government of Japan and the Japan Chemical Fibres Association acted as host to the Seminar as well as organized a study tour from 5 to 7 November of chemical fibre plants in the Osaka area.

This Seminar is one of a series of seminars organized by the ECAFE secretariat dealing with chemical and allied industries. It is also a follow-up of the Interregional Conference on Petrochemical Industries for Developing Countries which dealt with petrochemical raw materials, intermediates and end-products including non-cellulosic man-made fibres.

Duration: May-November 1966

Estimated cost and source of funds: \$25,000 under regular programme of technical assistance and ECAFE regular budget.

I. Fertilizers

VI.I.1. ECA project: Soil Fertility and Fertilizers in West Africa

A paper on the above subject (E/CN.14/INR/70/Ref.1), prepared by FAO for ECA, reviewed available information on fertilizer consumption, by trend and country, and recommended types of fertilizer suitable to West Africa.

VI.I.2. ECA project: Chemicals Industry in West Africa

See entry No. VI.H.3.

VI.I.3. ECAFE project: Prospects of Regional Co-operation in the Field of Fertilizers in the ECAFE Region (I&NR/AIDC.1/12)

Authority: The first Asian Conference on Industrialization.

Description: The conference recommended that the ECAFE secretariat undertake an investigation of the feasibility of various joint industrial schemes, including fertilizers.

The ECAFE secretariat and the interregional adviser on fertilizers, United Nations Headquarters, prepared the study and presented it to the first session of the Asian Industrial Development Council.

The objective of the study was to bring out the urgent needs for increased consumption of chemical fertilizers in the ECAFE region and to identify the specific possibilities of developing fertilizer industries on a joint venture or co-operative basis by two or more ECAFE countries. Preliminary studies on the economic and technical feasibility of joint projects show that fertilizer industries can be established in Iran and Brunei (and also Indonesia), which have surplus natural gas resources now being wasted.

Duration: July - August 1966.

Estimated cost and source of funds: About two man-months.

VI.I.4. CID project: Studies on Selected Subjects for the Development of Fertilizer Production

Authority: Committee for Industrial Development, sixth session (E/4065, para.70).

Description: Studies for circulation to planning bodies in developing countries. Follow-up of the recommendations and resolutions of the Interregional Symposium on Fertilizer Production, Kiev, 1965,

- (a) Reducing sulphur needs in fertilizer manufacture, and
- (b) Establishing and evaluating successful fertilizer projects.

Duration: 1965-1966

Estimated cost and source of funds: \$1,750; United Nations budget.

VI.I.5 CID project: Fertilizer Manual

Authority: Committee for Industrial Development, sixth session (E/4065, para.70).

Description: Compilation and publication of manuals concerning selected branches of industry are included in the work programme of the CID.

The purpose of the Fertilizer Manual is to consolidate actual data, experiences and technical information in a symoptic way to help the policy makers and professionals of the developing countries in making decisions concerning the establishment and expansion of fertilizer production.

A draft of the manual is already under discussion and further research and studies to bring it up to date have been completed. The draft was used in the Kiev Fertilizer Seminar and widely circulated for comments. It was submitted to the Committee in 1965. It is expected that the manual will be printed by the end of 1966.

The manual will serve as a reference document to guide United Nations experts working in the field. It will transfer modern technology to developing countries and indicate capital costs and costs of production for various capacities and products. It is divided into three main parts and contains twenty-one chapters, 109 tables and ninety-three figures.

It was prepared by outside experts and by the United Nations specialists and discussed at the Interregional Seminar on Fertilizer Production in 1965. It was updated and technically edited by the Tennessee Valley Authority.

Duration: The project was initiated in 1964. The draft of the manual was completed in 1965; it is expected to be completed in final form in 1966.

Estimated cost and source of funds: \$25,000; United Nations budget.

VI.I.6. CID project: Ad Hoc Expert Meeting on Fertilizer Production (9-16 December 1966)

Authority: Committee for Industrial Development (E/C.5/L.56) and Economic and Social Council resolution 1179 (XLI).

Description: The meeting will help to focus attention on the problems and to compile in one report data on the use of natural gas for fertilizer production. It will assist the World Bank, the UNDP and regional economic commissions in their work in this field.

The report of the ad hoc group is expected to generate interest in developing the fertilizer industry by investments with bilateral and multilateral aid in areas of the world where natural gas is now being flared. The experts are from Iran, Kuwait, Libya, Nigeria, Saudi Arabia and Venezuela, where the use of natural gas now being flared is of particular interest. There will be five international experts and ten observers from international companies.

Experts from the countries concerned were invited and suitable international experts were recruited to discuss the problems of fertilizer production from natural gas at present being flared.

Duration: July - December 1966

Estimated cost and source of funds: \$16,640; expert group funds.

VI.I.7. CID project: Cyprus - Feasibility Study for the Manufacture of Fertilizers

Authority: Request from the Government of Cyprus of approval under the programme of Special Industrial Services.

Description: The Government has been investigating the possibility of establishing a fertilizer industry for which several project reports have been prepared. During the visit of CID officers it became clear that the first step should be to make a study for a project for phosphate fertilizers using local pyrites to produce sulphuric acid. The country needs about 10,000 tons of P_2O_5 by 1970.

The feasibility study will be divided in the following major parts:

- (a) Different scales of production;
- (b) Different product-mix;
- (c) Location;
- (d) Capital costs;
- (e) Production costs;
- (f) Layout of plant facilities;
- (g) Economics of indigenous production compared to imports.

The feasibility study will be subcontracted to an outside expert who will be briefed and guided by the CID and provided with an outline.

Duration: September - December 1966.

Estimated cost and source of funds: \$1,500, programme of Special Industrial Services.

VI.I.8. CID project: India - Assistance in connection with Production of Fertilizers

Authority: Request to be received from the Government of India; approved under the programme of Special Industrial Services.

Description: Following informal discussions with government authorities, the CID is recruiting experts for a period of from three to six months to assist the Government in the country in increasing efficiency of existing industries or in developing industries which will help in import substitution. These will comprise:

- (a) An adviser on phosphate fertilizer industry;
- (b) An expert on mining pyrites and another expert on production of sulphuric acid from pyrites;
- (c) An expert on production of sulphuric acid from gypsum.

Duration: October 1966 - October 1967.

Estimated cost and source of funds: Approximately \$36,000; programme of Special Industrial Services.

VI.I.9. CID project: Jordan - Request for a Chemical Engineer to advise on Setting Up a Fertilizer Complex in Aquaba

Authority: Request from the Government of Jordan for approval under the programme of Special Industrial Services.

Description: The project is designed to assist the Government in the preparation of a preliminary comprehensive study of the problem of fertilizer production and, if possible, to advise and set up in Aquaba a unit to produce triple superphosphate and mixed fertilizers. As a second stage, production of ammonia is contemplated.

Jordan produces phosphate rock and has plans to produce potash from the Dead Sea. The proposed fertilizer project will use these indigenous raw materials and will substitute for imports.

VI.I.10. CID project: Pakistan - Pre-Investment Studies for the Promotion of the Fertilizer and Petrochemical Industries.

See entry No. VI.H.13.

VI.I.11.

CID project: United Arab Republic - Location Studies for a Urea Complex and Engineering Studies for the Aswan/Saibya Phosphorous Complex

Authority:

Request from the Government of the United Arab Republic ; approval under the programme of Special Industrial Services.

Description:

The Government is planning a large ammonia and urea project either in Suez or in Alexandria for export purposes. A three-man mission will study and advise on the location for this project. One man will assist in making engineering studies and tender specifications for the phosphorous complex.

The Interregional Adviser from CID is expected to act as leader of the mission. Two outside experts will be recruited.

Duration:

September 1966 - September 1967.

Estimated cost and source of funds:

Approximately \$20,000; programme of Special Industrial Services.

J. Basic and Other Chemical Industries

VI.J.1. ECA project: Chemicals Industry in Central Africa

ECA is at present undertaking a study of the chemicals industry for the six countries of the Central Africa sub-region similar to the one described in entry No. VI.H.3.

VI.J.2. ECA project: Chemicals Industry in West Africa

See entry No. VI.H.3.

VI.J.3. ECE project: Market Trends and Prospects for Chemical Products in the Countries Participating in the Work of ECE

Authority: Meeting of Experts on Chemicals, pursuant to Commission resolution 6 (XIX), held in Geneva in October 1964.

Description: In accordance with the outline approved by governmental experts, the study will analyse the development of production, consumption, foreign trade and prices of all chemicals as defined under Section 5, Chemical elements and compounds with the addition of Subgroup 231.2 - Synthetic rubber and rubber substitutes and of Group 862 - Photographic and cinematographic supplies of the SITC (revised), in the years 1950, 1953, 1955, 1958 and in each year from 1960 to 1964. The latest technological progress will be considered to see its impact on the development of the chemical industry: forecasts of production and consumption up to 1960 will be tentatively made on the basis of the existing national plans for some basic products.

VI.J.4. ECE project: Development of the Chemical Industry in the Developing Countries

Authority: International Symposium on Industrial Development.

Description: The study will cover production, consumption and foreign trade in chemicals in selected countries of Africa, Asia and Latin America in the latest years. Forecasts will be provided up to 1970, with the assistance of consultants.

VI.J.5 CID project: Studies in Selected Fields of the Chemical Process Industries

Authority: Committee for Industrial Development, sixth session (E/4065, para. 70).

Description: Studies for the collection and dissemination of technological information, not generally readily accessible, on chemical process industries, including the following: coal chemicals, calcium silicate bricks, soda chemicals, industrial alcohol, industrial utilization of animal wastes, industrial utilization of soy proteins.

The studies are for distribution to developing countries with a view to promoting industrial development and stimulating requests for technical assistance. They will also be used as background documentation for seminars.

The studies will be carried out by the CID in collaboration with outside experts. It is proposed to publish the studies.

Duration: 1965 - 1966.

Estimated cost and source of funds: \$8,000; United Nations budget.

VI.J.6 CID project : India - Assistance to the Chemical and Engineering Industries Sectors

See entry No. VI.C.18.

K. Food Industries, including Beverages, Tobacco, Fish Products, etc.

VI.K.1.

ECA project: Food-Processing Industries in West Africa

ECA, with the assistance of consultants provided under bilateral technical assistance, prepared a study (E/CN.14/INR/122) on the establishment of food-processing industries in West Africa for the subregional meeting on Economic Co-operation in West Africa. The study considered agricultural processing industries, meat and meat products, fish and manufactured foods, and recommendations covered each of the fourteen countries in respect of projects to be implemented in this field.

VI.K.2.

ECA project: Production of Beverages and Tobacco in West Africa

ECA prepared for the Conference on Economic Co-operation in West Africa, held in 1966, the following papers on beverages and tobacco: "The Beverages Industry in the West African Subregion" (E/CN.14/INR/125), and "Manufactured and Unmanufactured Tobacco in the West African Subregion" (E/CN.14/INR/114).

Both studies reviewed existing demand and production and projected the demand for 1975 and 1980 for each of the fourteen countries of the subregion. On the basis of future demand, they suggest units for the manufacture of beer, soft drinks, cigarettes and cigars and other tobacco products for the countries of the subregion.

VI.K.3.

ECA project: Sugar Industry in West Africa

ECA, with the assistance of a consultant, prepared a study on the development of the sugar industry in the West African subregion. The paper reviewed the existing demand for sugar and sugar products in the subregion and the projected demand in 1970, 1965 and 1980; discussed the possibilities of meeting the demand through increased production of sugar cane and its conversion into plantation sugar, and suggested possible utilization of by-products.

VI.K.4. ECAFE project: Agriculture-Based Industries in the ECAFE Region

A beginning has been made to the examination of agriculture-based industries in the region. Necessary statistical data have been collected for a study on fats and oils for the countries of the region.

VI.K.5. CID project: Situation, Problems and Prospects of Main Industrial Sectors.

See entry No. VI.A.15

VI.K.6. CID project: Studies on Selected Topics relating to the Food-Processing Industry

Authority: Committee for Industrial Development, sixth session (E/4065, para.70).

Description: Two studies designed to disseminate technological information in connexion with specific areas of the food industry. These studies will be distributed to developing countries with a view to promoting development in these fields and to stimulating requests for technical assistance. The two studies are:

(a) "Citrus Fruits Processing" (50-60 pp.), being prepared by Dr. D. Z. Berk, Visiting Associate Professor of the Department of Nutrition and Food Science, Massachusetts Institute of Technology, and

(b) "The Use of Centrifugal Evaporators and Expanding Flow Evaporators in the Food and Biochemical Industry" being prepared by Mr. B. Hallstrom, of Alfa Laval, AB, Lund.

Duration: The first-mentioned study was initiated in August 1966 and is expected to be completed in February 1967; the second was initiated in May 1966 and is to be completed in January 1967.

Estimated cost and Source of Funds: \$1,000 each; United Nations budget.

VI.K.7 IAEA/FAO project: International Symposium on Food Irradiation.
Geneva

Description: In addition to reports of progress in research, sessions were held on available and planned radiation facilities in various countries, economics, of food irradiation and legislation on irradiated foods, all of these sessions having implications for future international trade in irradiated food.

Duration: 6-10 June 1966.

Estimated cost and source of funds: IAEA budget.

VI.K.8. IAEA/FAO project: Radiation Disinfestation of Grain in Turkey

Authority: UNDP, at the request of the Turkish Government.

Description: A panel of experts on radiation disinfestation of grain was convened in Vienna in 1962 and recommended to the Agency that a pilot plant for the disinfestation of grain be initiated.

At the request of the Government, a special mission was sent to Turkey in March 1964 to study the feasibility of applying ionizing radiation to the treatment of grain in that country. This mission recommended that a demonstration pilot plant be established in Turkey.

The purpose of this project is to help establish a pilot plant to demonstrate and develop basic technical information on the radiation disinfestation of stored grains under semi-commercial conditions. This will include collecting economic information, demonstrating the feasibility and practicability of radiation disinfestation, and making the results available on an international basis.

This project is directly related to the programme of work in food preservation by irradiation. Also, it fits into the world-wide programme on the elimination of waste and losses in food supplies.

The scope of the application can be considered world-wide, wherever adequate volumes of food products are stored to make the application economically competitive with present conventional methods. Successful demonstration of this method of treatment for the control of insects could be expected to lead to investment follow-up not only in food grains but in many other agricultural products.

The project has been implemented through the construction of a pilot plant irradiation unit at a grain terminal at the port city of Askenderun, Turkey. A novel means of controlling the flow of grain through the unit has markedly increased the efficiency of the use of the gamma radiation. The selection of the site was made because of there being a warm climate, a definite insect problem (including the Kharra beetle) and a co-operative spirit to try to do something about the situation.

Duration: Initiated in 1966. Pilot plant is expected to be in operation by late February 1967. To be completed in 1969.

Estimated cost and source of funds: \$1,549,500; UNDP/Turkey.

VI.K.9. ECAFE project: Appointment of a Regional Adviser on Oils and Fats Industries

Authority: Recommendation of the Asian Conference on Industrialization to an Oils and Fats Industry Advisory Group.

Description: The purpose of the project is to render technical assistance to the countries of the region, on request, on the development of oils and fats industries.

At the request of the Government of Ceylon, the Regional Adviser has rendered advisory services. Requests have been received from the Government of China, Iran and Thailand which will be met in 1967.

Duration: The project was initiated in 1966 and will continue until 1967.

Estimated cost and source of funds: \$10,000 in 1966 and \$20,000 in 1967, from the regular programme of technical assistance.

L. Textiles

Vl.L.1

ECA project: Textile Industry in West Africa

ECA has completed a paper entitled "The Textile Situation in West Africa: Markets - Industries Prospects" (E/CN.14/INR/129). The paper reviews the existing textile industry in the countries and the over-all demand and production in the subregion; makes demand projections for 1980; emphasises the imperative need for a subregional framework for effective development of a viable textile industry; and suggests a programme of development in the context of the 1980 market in West Africa.

Vl.L.2

ECA project: Synthetic Fibre Industry in West Africa

ECA, with consultants provided under bilateral assistance, undertook a study of the possibilities for the development of a synthetic fibre industry in West Africa. The study (E/CN.14/INR/145) discusses markets for various synthetic fibres for both clothing and industrial purposes and the feasibility of synthetic fibre manufacture based initially on imported monomers.

Vl.L.3

ECA project: Bags and Bagging Materials in West Africa

ECA, with secretarial staff, prepared a paper on bags and bagging materials in West Africa. The paper (E/CN.14/INR/133) is a first study of the market for hessian and sacks and industrial prospects for manufacture in the subregion.

Vl.L.4

CID Project: Manual of the Textile Industry with Emphasis on Prospects of the Textile Industry in Developing Countries

Authority:

United Nations Interregional Workshop on Textile Industry in Developing Countries, Lodz, September 1965.

Description:

The purpose of the Manual is to present planners and policy makers in developing countries with a comprehensive guide to the establishment, or reorganization and rationalization of their textile industry. The manual will consist of about 300 papers covering all techno-economic aspects of the modern textile industry.

VI.L.5

CID project: Operational Characteristics of the Textile Industry in Developing Countries.

Authority:

United Nations Interregional Workshops on Textile Industries in Developing Countries, Lodz, September 1965.

Description:

The purpose of the project is to provide information to policy makers and industrialists and their associations of the countries of the ECA and ECANE regions, and to international development agencies, on the problems of the textile industry in those regions.

The study will take the form of preproject analyses of the textile industry of each of the countries of the regions, in which the problems of each sector will be identified. Plans will be presented for the solution of these problems and estimates made of requirements for investment and technical assistance needed for the reorganization, rationalization and expansion of the industry.

On the basis of a questionnaire completed by each mill, the following indexes will be calculated: unit output, productivity, workload, machines installed, machines operating, hours of operation, over-all index of machinery utilization, up-to-dateness of machinery and others. This will enable a presentation to be made of the current situation in the textile industry in each country showing the factors affecting the level of production. The results of this analysis combined with an estimate of future needs for textiles will allow guidelines to be prepared for the planning of this industry.

Duration:

The project was initiated in February 1966. It is estimated that one or two of the many studies will be completed by December 1967.

Estimated cost and source of funds:

\$6,000, United Nations budget.

VI.L.6

CID project: Elaboration of Guidelines for Selection of Machinery in the Textile Industry

Authority:

United Nations Interregional Workshop on Textile Industries in Developing Countries, Lodz, September 1965.

Description:

The purpose of the project is to provide policy makers and industrialists and their associations of the ECA and ECAPL regions with information concerning techniques available in the textile industry, and to lay down guidelines for the selection of appropriate textile machinery for each country. The study will provide a basis for estimating investment for machinery in the industry. Preproject studies will be made of the cotton textile mills of each region, subregion and country, taking into account the prevailing costs of principal inputs, materials needed and their availability. The available machinery will be classified according to its degree of automation. Data will be collected on factors affecting the cost of production in order to determine which technology is most economical in terms of the costs prevailing in the region studied. On the basis of this information, models will be drawn up indicating, in terms of production costs and employment of various factors, the most economical choice of technology.

Duration:

Initiated November 1966; to be completed December 1967.

Estimated cost and source of funds:

\$10,000, United Nations budget.

VI.L.7

CID project: Situation, Problems and Prospects of Main Industrial Sectors

Authority:

See entry No. VI.A.15

VI.L.8

CID project: United Nations International Workshops on Textile Industries in Developing Countries. Lodz, September 1965

Authority:

Expanded Programme for Technical Assistance, 1965.

Description:

The purpose of the Workshop was to provide information to policy makers and professionals, especially those in the developing countries, in support of the substantive activities in technical assistance, and for briefing of technical assistance experts. It covered the international setting of the textile industries, assessment of needs, formulation of policies, import substitution, raw materials, criteria for selection and availability, optimal utilization of mills, recent trends in textile processes and products, plant size and economies of scale, textile

mill controls and productivity measurements in the textile industry.

Duration:

6-27 September 1966.

Estimated cost and source of funds:

Expanded Programme of Technical Assistance, 1965.

M. Ceramics, including Glass and Earthenware

VI.M.1

ECA project: Ceramics Manufacture in West Africa

A study on the above subject (E/CN.14/INR/112) estimates the present requirements of ceramics and the future demand in the fourteen countries of the subregion; discusses the availability of raw materials for manufacture of household, industrial and sanitary ware and makes specific recommendations for new plants with determined specialization based on multinational and subregional markets.

VI.M.2

ECA projects: Refractory Products Industry in West Africa

A study on refractory products in West Africa (E/CN.14/INR/132) indicates that the demand for refractory materials in individual countries of the subregion is in many cases below the threshold of economic production. It is argued however, that as refractories are essential to industries using kilns, e.g., metallurgical, glass, ceramics, tiles etc., the consumption is likely to expand at a rapid rate and in the light of such increases, the study recommends the establishment of two factories based on subregional markets.

VI.M.3

ECA project: Glass Industry in West Africa

A paper entitled "Techno-economic Aspects of the Glass Industry in the West African Subregion", prepared for the Conference on Economic Co-operation in West Africa by a consultant provided under bilateral assistance, discusses markets for household and industrial glass in West Africa and the manufacture of these products in the subregion.

N. Building Materials and Construction Industry

V1.N.1

The Construction Industry in Development Programmes

A techno-economic review in the West African sub-region (E/CN.14/INR/107) determines the economic significance of the construction industry and investments in construction and aggregate supply characteristics; reviews the trends in construction activities of the subregion; projects demand and its implications on supply factors, and concludes that there is need for reorganization and expansion of the industry and for accelerated training of skilled manpower.

V1.N.2

ECA project: West African Cement Industry

"Development Programme for the West African Cement Industry" (E/CN.14/INR/117) reviews the past trends and present level of consumption of cement and current production in the subregion; estimates demand in 1980; discusses the requirements of raw materials and other inputs, and economies of scale and makes proposals for a phased programme of development.

V1.N.3

ECA project: The Role of Cement-Based Industries in Economies of Construction and the Prospects of their Development in West Africa.

The study (E/CN.14/INR/134) discusses the role and importance of cement-based products such as concrete products and asbestos-cement products; reviews existing demand and projected demand; makes a quantitative summary of the existing cement-based industry and its competitive position, and recommends the expansion of this industry to meet increasing construction needs in the subregion.

V1.N.4

ECA project: The Bricks Industry In West Africa

The above study (E/CN.14/INR/124) suggests that raw materials necessary for production of bricks are available in all countries of the subregion and that high transport costs make for decentralized manufacture. To meet increasing demand, forty-six brick yards with capacities ranging from 8,000 to 40,000 tons per annum are recommended.

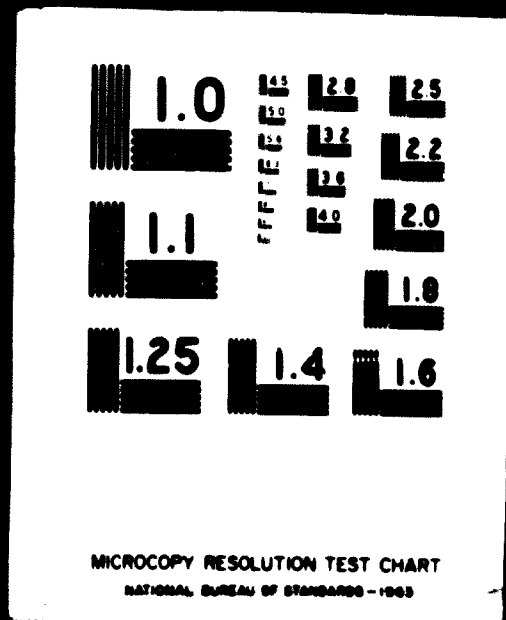


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We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche.

VI.N.5

Paint Products Industry in West Africa

A prefeasibility study (E/CN.14/INR/139) included an investigation of the domestic markets for paint products, 1960-1965, projected markets for 1975 and 1980, current production and capacities, feasible expansion of production including suggested location, size of individual units and economies of scale and recommendations on new production.

VI.N.6

ECE project: Production of Building Materials and Components in Developing Countries

Authority:

Centre for Industrial Development.

Description:

A study to provide a background for the discussion of the building materials and components sector at the International Symposium on Industrial Development, which is scheduled to be convened in 1967 under the auspices of UNIDO. The report is being designed to serve as a guide to Governments and central and local authorities in developing countries in their policies regarding the organization and development of suitable production machinery for the provision of building materials and components. It is hoped that reports will also provide a framework of policy for international development aid in this field.

The study will comprise some 150 to 200 pages, divided into four main parts. In addition there will be annexes containing some detailed technical information and a bibliography. There will be a 40-50 page summary including conclusions and recommendations.

A panel of consultants consisting of some ten high-level experts on building materials and construction has been set up to provide guidance on the preparation of the outline of the study and to scrutinize the draft report. The drafting work has been allocated to expert consultants recommended by or drawn from the panel. The introduction, summary, conclusions and recommendations will be drafted by the ECE/Secretariat.

Duration:

The project was initiated in July 1965. A full draft of the study is expected to be submitted to the Centre for Industrial Development in November 1966.

VI.N.7

ECE project: Periodic Review of the Development of the Building Industry in ECE Countries and of Government Measures Affecting this Development

Authority: Long-term programme of work of the Sub-Committee on the Building Industry of the ECE Committee on Housing, Building and Planning.

Description: The purposes of the review are: to improve the mutual understanding of the circumstances prevailing in member countries; to identify the initiatives and new developments which are taking place; to provide a source of reference for member countries in order to make it easier for them to identify subjects which are of the most interest to the greatest number and therefore suitable for international co-operation through ECE; to allow one member country to identify activities of particular interest in another country and thus to encourage the direct exchange of experience between countries on problems of common interest.

The review is carried out by an exchange of country monographs, each comprising some twenty-five pages, divided into four parts dealing with: the structure of government and the building industry; over-all government activities in relation to the building industry; activities and new developments within the building industry and statistical tables. The information on the structure of government and the building industry and the statistical data are being summarized and published by the ECE secretariat.

Duration: The project was initiated at the first session of the Sub-Committee on the Building Industry in November 1964. The first exchange of country monographs was completed in April 1966. The summary papers by the ECE secretariat are expected to be ready by April 1967. It is expected that the information provided by Governments for the review will be brought up to date every second or third year.

VI.N.8

ECE project: Promotion of Standardization and Dimensional Co-ordination in Building

Authority: Standardization and dimensional co-ordination in building have been subject to attention by the ECE Committee on Housing, Building and Planning during the last ten years. The subject forms a standard

item of the long-term programme of work of the Subcommittee on the Building Industry.

Description:

The main purpose of ECE's work in this field is to promote the acceptance of international standards in building by means of direct recommendations to Governments.

Two specialized meetings on the subject were organized by the ECE in 1959. An enquiry on current trends in dimensional co-ordination in building, in European countries has recently been completed and a report will be published by the end of 1966. The work is carried out in close collaboration with the International Modular Group (Working Commission W.24 of the International Council for Building Research, Studies and Documentation). Recommendations to Governments regarding the promotion of dimensional co-ordination in building were adopted by the Committee on Housing, Building and Planning at its twenty-sixth and twenty-seventh sessions.

Duration:

The project is of a continuing character.

VI.X.9

CID project: Situation, Problems and Prospects of Main Industrial Sectors

See entry No. VI.A.15

VI.X.10

CID project: Development of Building Materials and Construction Techniques in Developing Countries

Authority:

1. Recommendations of the Economic and Social Council to the General Assembly on the adoption of its resolution 1024A (XCVII). (Official Records of the General Assembly: Nineteenth session, supplement No. 3 (A/5203), para. 374).

2. Study tour of building technologists in the USSR (ST/TAO/Ser.C/65).

Description:

II. Studies are being prepared on the following:
Organization of building operations for the Africa region;
Organization of building operations for the Latin America region.

The purpose of these studies is to analyse the present status of organization of building operations in these regions and to provide useful suggestions for the improvement of building operational activities, based largely on the experience gained by the more highly developed countries. It is well-known that when work drawings and specifications are prepared

in close co-ordination with the planning and building operations, it is possible to achieve considerable economies in the use of building materials, higher productivity of workers, and reduced overheads. In the nationalization of building operations, the dictates of methods of control and execution also have to be taken into account. This general principle applies not only in the case of advanced prefabrication but also to the simplest traditional forms of construction.

These papers are being prepared under the joint programme of the CID and the Centre for Housing, Building and Planning in the field of building materials and construction industries. They are expected to lead to technical assistance projects.

Duration:

Initiated in August 1965; to be completed in December 1966.

Estimated cost and source of funds:

\$5,500; United Nations budget.

VI.N.11

CID project: Development of Building Materials and Construction Industries in Developing Countries

Authority:

1. Recommendations of the Economic and Social Council to the General Assembly on the adoption of its resolution 1024A (XXXVII). (Official Records of the General Assembly, Nineteenth Session, Supplement No. 3 (A/5803), para. 374).
2. Study tour of building technologists in the USSR (ST/TAO/Ser.C/65).
3. Proceedings of the Symposium on Industrialization in Africa (E/CN.11/374).
4. Proceedings of the Asian Conference on Industrialization (E/CN.11/719).

Description:

Techno-economic studies in the following subjects are being prepared: plastic magnesia cements, building lime, brick manufacturing, puzzuolana cements, plastics as building materials, small-scale manufacture of portland cement, lightweight aggregates, calcium silicate bricks and uses of bamboo and reeds in house building.

The purpose of these studies is to assist developing countries with the solution of economic and technological problems of the establishment and development of the building materials industries and to collect the necessary information on modern technology and experience in industrialized countries in

the field of building materials industries and to transfer it to developing countries. The collection and dissemination of relevant information covering the development of these industries is also involved.

Construction involves one-half to two-thirds of all investment in capital formation in developing countries. Consequently, even a slight reduction in construction cost would release the equivalent of hundreds of millions of dollars for other productive activities. Efficient construction and materials industries would, first of all, help to reduce costs and, if coupled with the exploitation of local raw materials, could also reduce or even obviate the need for imports of many goods and services which are normally paid for in foreign currencies. It is expected that these studies will lead to the establishment of technical assistance projects.

Duration:

Initiated in August 1965; to be completed in December 1966.

VI.N.12

ECE project: Organization of Seminars and Study Tours on the Development of Industrialized Building and Related Subjects.

Authority:

The first ECE Seminar on the Building Industry was organized in Prague in April 1964 at the request of the ECE Committee on Housing, Building and Planning. The organization of seminars and study tours on industrialized building was adopted as a standing item of the programme of work of the ECE Sub-Committee on the Building Industry, at its first session held in November 1964. The second ECE Seminar on the Building Industry will be held in Paris in April 1967, on the theme "The Future Design, Production and Use of Industrially Made Building Components".

Description:

The purpose of the seminars and study tours is to promote the application of industrialized building methods through discussion between representatives of Governments, the building industry, the building materials and components industries; the design professions and building research in particular of possible initiatives and measures which could be taken by Governments.

The report on the proceedings of the first ECE Seminar on the Building Industry has been published in three volumes (ST/ECE/HOU/13). The preparatory work for the second Seminar will be finalized by the end of November 1966 by circulation of four introductory reports covering the main aspects of the

theme of the Seminar. The main conclusions emerging from this Seminar will be presented to the twenty-eighth session of the ECE Committee on Housing Building and Planning in May 1967. A full report on the proceedings of the Seminar will be published in the Autumn of 1967.

Duration:

The project is of a continuing nature.

VI.N.13

CID project: Development of Building Materials and Construction Industries in Developing Countries

Authority:

Recommendations of the Economic and Social Council to the General Assembly on the adoption of its resolution 1024 (XXXVII). Official Records of the General Assembly, Nineteenth Session, Supplement No.3 (A/5803, para. 374).

Two regional seminars on prefabrication in building for the Asia and Far East and Latin American regions respectively, and an interregional workshop on Administrative and organizational measures for increasing productivity in the housing construction and building materials industry, are being organized by the Centre for Housing, Building and Planning in co-operation with CID, the UNDP and the regional economic commissions.

Description:

The purpose of these meetings is:

(a) to exchange experience and arrive at conclusions on the formulation and implementation of policies affecting the development of prefabrication in the building industry.

(b) to discuss technical, organizational and economic aspects of the building materials and construction industries and their role in the general economic and social development and their dependence on their basic industries.

The building materials and construction industries occupy a pivotal position in national development strategy, particularly in meeting the urgent need for rapid expansion of construction and materials capacities coupled with intensive mechanization. The capacity and efficiency of the construction and building materials industries influence, to a large extent, the pace and cost of development.

The participation of CID in the preparation of the above seminars and workshops is one of its activities under the joint programme of CID and the Centre for Housing, Building and Planning in the field of building materials and construction industries.

Durations:

The project was initiated in 1965 and will be completed as follows: the regional seminar for the Latin American region in 1967; the interregional workshop in 1967; the regional seminar for the Asia and Far East region in 1968.

Estimated cost and source of funds:

Technical assistance funds.

VI.N.14

CID project: Development of Building Materials and Construction Industries in Developing Countries

Authority:

1. Recommendations of the Economic and Social Council to the General Assembly on the adoption of its resolution 1024 (XXXVII). Official Records of the General Assembly, Nineteenth Session, Supplement No.3 (A/5803), para. 374).
2. Study tour of building technologists in the USSR (ST/TAO/Ser.C/65).
3. Proceedings of the Symposium on Industrialization in Africa (E/CN.14/374).
4. Proceedings of the Asian Conference on Industrialization (E/CN.11/719).

Description:

An interregional seminar on the development of the clay products industry has been recommended for forty to forty-five participants from developing countries. Clays are almost ubiquitous natural products, and represent a natural resource of considerable magnitude the exploitation of which is in the national interest. Clay-using industries are of fundamental importance to every country's economic development. The purpose of the seminar is to assist developing countries with the solution to economic and technological problems of the establishment and development of the clay products industry; to collect the necessary information on modern technology and experience in industrialized countries in the field and to transfer it to developing countries. It will also enable developing countries to secure better appreciation of how the United Nations technical assistance programme could be used in this field.

Duration:

The project was initiated in January 1966; it will be completed when funds become available to finance it.

Estimated cost and source of funds:

Consultants, \$10,000; travel, \$35,800; other, \$15,200; Total, \$61,000. Technical assistance funds.

VI.N.15 BSA/CID project: Technical Assistance to Iraq in connexion with a Building Research Centre

Authority: Economic and Social Council Resolution 222 (IX)

Description: In order to undertake a large housing programme and to improve the use of local building materials, the Government requested assistance in the establishment of a building research centre. Advice was given on the organization, staffing and equipping of the centre as well as on the programme of operations, proposals were drawn up and training of staff initiated.

Duration: 1964-1966

Estimated cost and source of funds: \$44,000; UNDP (TA)

VI.N.16 BSA/CID project: Technical Assistance to Indonesia in connexion with Timber Houses

Authority: Economic and Social Council resolution 222 (IX).

Description: Project to assist the Regional Housing Centre in the design of timber houses for hot-humid tropical regions. Specifically, the project was aimed at improving traditionally built timber houses and at industrializing housing construction. Advice was given on the whole process from design to final construction of timber houses. Proposals were drawn up, trained staff, seminars organized and local professionals assisted in their daily work. The project was connected with the UNDP project, Building Materials Development Laboratory in Bandung and the Pulo Mass project in Djakarta.

Duration: Initiated 1964; terminated 1965.

Estimated cost and source of funds: \$20,000; UNDP (TA)

VI.N.17 CID project: Turkey - Cement Industry, Izmit

Authority: Request from the Government of Turkey; approval under the programme of Special Industries Services.

Description: Technical assistance at the plant level to improve productivity of Turkish cement industry.

The consultant will:

(a) Suggest measures for co-ordination of work of all the cement factories in Turkey and examine the modernization of the existing factories;

(b) Examine greater utilization of slag and prospects of utilizing waste products of the iron and steel industry.

Duration:

Initiated in September 1966.

C. Pulp and Paper

VI.O.1

FAO/ECA organized a Conference on Pulp and Paper Development in Africa and the Near East which was held in Cairo from 8 to 18 March 1965. Third of a series of regional conferences, the direct importance of this meeting is linked to the fundamental role that paper must play in the economic and social development of countries of Africa and the Near East. A special ad hoc working group was established by the Conference to look into the economic and technical aspects of producing newsprint from bagasse (see Report of the Working Party on Bagasse Newsprint (ECA/STAO/FAO CONF/Proceedings, pp. 39-42)

VI.O.2

FAO organized a Group Fellowship Seminar and Study Tour on Forest Industries in the USSR in which twenty-eight participants (from seventeen countries from four continents) were engaged. The participants were responsible for the planning and development of forest industries in their respective countries. Mechanical wood conversion, in particular sawmilling, plywood and other board material, joinery and furniture manufacture, were the principal features of the programme, which included lectures on the technology and management methods applied in the USSR as well as visits to a number of forest industry countries.

VI.O.3

CID Project: Ghana - Paper Conversion in Takoradi

Authority:

Request from the Government of Ghana; approval under the performance of Special Industries Services

Description:

The paper conversion factory in Takoradi is a state enterprise operating at an annual loss. CID will provide the services of a cost analysis and industrial accounting consultant for six months to make arrangements for and offer advice on accurate financial statements and the establishment of proper accounting systems.

Duration:

Initiated in 1966.

Estimated cost and source of funds:

About \$11,000; programme of Special Industries Services.

VI.0.4

CID Project: Paper Mill in the Ivory Coast

Authority:

Request from the Government of the Ivory Coast; approval under the programme of Special Industrial Services.

Description:

Technical assistance at the plant level to assist the Government with the pre-investment and financing aspects of the paper mill project. An examination will be made of the technical assistance needed for the establishment of a pilot plant.

Duration:

Initiated in 1966

Estimated cost and source of funds:

\$3,000 initially; programme of Special Industrial Services.

VI.0.5

CID Project: Nigeria - Paper Factory in Jebba

Authority:

Request from the Government of Nigeria; approval under the programme of Special Industrial Services.

Description:

Technical assistance at the plant level to pinpoint faults and deficiencies in the machinery, production programmes and overall plan of operation, and to make recommendations for the future profitable management and operation of the mill.

Duration:

Initiated in 1966.

Estimated cost and source of funds:

\$3,500; programme of Special Industrial Services

VI.0.6

CID Project: Turkey - Paper Mills in Iznik

Authority:

Request from the Government of Turkey; approval under the programme of Special Industrial Services.

Description:

Technical assistance at the plant level to improve the productivity and efficiency of the Turkish pulp and paper industry. The consultant will:

- (a) Suggest steps for the co-ordination of the work of all the paper mills in Turkey;

- (b) Examine the possible replacement of all ten paper machines;
- (c) Examine greater utilization of waste paper;
- (d) Examine prospects of utilizing waste products of the paper industry;

Duration: Initiated in September 1966

VI.0.7 CID Project: Sudan - Cardboard Factory in Arcata

Authority: Request of the Government of the Sudan; approval under the programme of Special Industrial Services.

Description: Technical assistance at the plant level to improve productivity and efficiency of general plant operation. The consultant will:

- (a) Examine the working of the factory in all its aspects;
- (b) Check the suitability of cotton stalks
- (c) Examine possibilities of improved technique and other raw material sources.

Duration: Initiated in 1966

VI.0.8 CID Project: United Arab Republic - Paper Mill

Authority: Request from the Government of the United Arab Republic; approval under the programme of Special Industrial Services

Description: Technical assistance at the plant level to improve productivity and diversify production of the paper mill. The consultant will examine the present production and make recommendations for improvement and steps to be taken for full capacity operation.

Duration: Initiated in 1966

P. Pharmaceutical Industries, including Pesticides,
Vaccines, etc.

VI.P.1

ECA project: Chemicals Industry in West Africa

See entry No. VI.H.3

Q. Instruments and Appliances, including
Engineering and Household Appliances

-No reports have been received on projects under
this heading.

R. Leather and Rubber Industries

VI.R.1

ECA project: Leather and Shoe Industry in West Africa

A prefeasibility study on the leather and shoe industry in West Africa (E/CN.14/ENR/110) was made for the ECA by a consultant provided under bilateral assistance. The study reviews existing markets in West African countries for footwear and leather, present production of shoes and tanned leather and projected markets for 1975 and 1980, and discusses feasible expansion of footwear production and leather production, the latter for local consumption and export.

VI.R.2

ECA project: Rubber Industry in West Africa

A study on the development of the rubber industry in West Africa (E/CN.14/ENR/131) was prepared for ECA by a consultant provided under bilateral technical assistance. The study reviewed the plantation industry in West Africa, the production of natural rubber for export and the existing pattern of industry for the manufacture of rubber goods, including automobile and bicycle tyres and suggested a programme of development for the rubber manufacturing industry for the countries of the subregion.

S. Clothing Industries

No reports have been received on projects under this heading.

T. Wood industries, including forest product industries

VI.T.1

ECA project: Forest Industries in West Africa

ECA, with the assistance provided by FAO, prepared a study entitled "Forest Industries Development in West Africa" (E/CN.14/INR/108), which dealt with the available forest resources and their development and the prospects for forest industries such as sawn wood, veneer and plywood, particle-board, fibre-board and pulp and paper. The study concluded that West Africa has now reached the stage when rapid industrial development based on its forest resources is both feasible and desirable. The programme of development envisaged production of veneer and plywood for export and of pulp, paper and paper conversion for a subregional market.

VI.T.2

ECA project: Furniture Industry in West Africa

The ECA study entitled "Furniture Industry Development in the West African subregion" (E/CN.14/INR/120) was prepared for the Conference on Economic Co-operation in West Africa.

VI.T.3

ECE project: Studies on Productivity Problems in the Wood-Processing Industries

Description:

A colloquium on the economic aspects of the production and utilization of fibreboard and particle-board was organized in 1962 and a symposium on the economic aspects of, and productivity in, the sawmilling industry in 1964. Papers presented at these meetings were subsequently published. The Timber Committee has incorporated into its programme a number of follow-up activities in the fields of the fibreboard, particle-board and sawmilling industries arising out of the recommendations made at these meetings. A symposium on integration in the forest industries is currently being prepared and will be held in the Spring of 1967; also, a second colloquium on panel products (fibreboard, particle-board, plywood and veneers) for early 1968.

VI.T.4

ECE project: Review of the Timber Market for Europe, including Timber Statistics

Description:

The Timber Committee reviews annually the market for forest products. In addition, the secretariat publishes in the Timber Statistics for Europe quarterly

market reviews and statistics. Market reports and studies are compiled and published periodically on individual countries or groups of countries or on specific sectors of the market. The statistics include European and North American trade in forest products with other regions.

Vl.T.5

ECE project: Mechanization of Wood Harvesting

Description:

Through a subsidiary body, the Joint FAO/ECE/ILO Committee on Forest Working Techniques and Training of Forest Workers, the Timber Committee studies ways increasing productivity in forest operations through mechanization. Symposia and study tours have been held on a number of subjects, such as the mechanical barking of roundwood and forest, tractors. Studies have been carried out on tractors as a basis for integrated machinery for wood-harvesting. Protocols have been drawn up and published for testing various types of machinery used in forest operations.

Vl.T.6

ECE project: Technical Co-operation and Contacts

Description:

The Timber Committee promotes study tours, training courses and visits by specialists to the forest products industries of member countries. Personal contacts and participation in technical meetings are encouraged as means towards the solution of technical problems in the forest and forest products industries.

U. Mining Industries

VI.U.1

ECA project: Mineral Resources

ECA has completed the inventory of mineral resources in countries of the East and West African subregions. In co-operation with outside institutions and agencies, it is planned to publish mineral maps of Africa. A coal map of Africa is already completed for publication; work on a map on iron ore resources in the region is in an advanced stage. These maps will show the types of deposits and the reserves as well as the quality of the minerals.

VI.U.2

ECA project: Mining Industry in West Africa

A study entitled "The Mining Industry in West Africa" (E/CN.14/INR/128) was made for ECA by a consultant provided under bilateral assistance and dealt with the prospects of exploitation of petroleum and gas, coal, bauxite, columbite, copper, iron, manganese, lead, zinc, titanium, phosphates, tin, gold and diamonds in the countries of the subregion. Addendum 1 of this document reviewed other less important minerals such as stone, gravel, crude phosphates, sulphur, chrome ores and other crude minerals such as clay, dolomite and salt.

V. Power and Electricity

VI.V.1

ECA Project: Development of Power Resources in West Africa

ECA prepared two studies and a working paper for the Conference on Economic Co-operation in West Africa:

- (a) "Aspects of Power Development and Utilization in West Africa" (E/CN.14/INR/106);
- (b) Preliminary Survey of the Possibilities and Prospects of Co-operation in the Field of Energy in West Africa (E/CN.14/INR/136 and Corr.1)
- (c) Energy Development in the Countries of the West African Subregion.

In consideration of these documents the meeting recommended the establishment of an Energy Committee within the intergovernmental organization for sub-regional economic co-operation, to define an integrated development policy for energy in West Africa and, inter alia, to undertake and make recommendations with a view to more intensive prospecting for primary energy resources in the sub-region and to promoting their development.

Power and Electricity

ECE General Energy Problems

The origin of the following items is resolution 12 (XIX) of the Economic Commission for Europe and the consideration given to this subject at the subsequent sessions of the Commission.

VI.V.2

The following studies and activities are being pursued in this field. On the basis of information obtained in reply to an enquiry, the secretariat is preparing joint studies on: Experience acquired in participating countries in respect of the degree of accuracy achieved in projecting requirements for the various forms of energy; and methods used for systematically assessing the influence on the energy

market and energy policy (a report is to be issued in 1967).

VI.V.3

The following enquiry is also being undertaken for the preparation of a report in 1967: Methods used for the long-term planning of energy supplies;

VI.V.4

The secretariat prepares and submits to the three Committees concerned with energy an annual survey of the recent energy situation in Europe. The latest document, issued in 1966, is ST/ECE/ENERGY/5.

VI.V.5

The following subject has been treated at a Symposium held in Prague in September 1966: The problems of the optimum economic exploitation of energy supply for heating and air-conditioning of large housing development. A series of reports was issued for the Symposium.

VI.V.6

A study on the comparative economics of transport and storage operations for different forms of energy (ST/ECE/ENERGY/6) has been prepared and issued in 1966

ECE Projects on electric power

The origin of the following items is a decision by the Committee on Electric Power. The details given below conform to the annual programme of work of the Committee for 1966-1967, as approved by the Committee at its twenty-fourth session (E/ECE/EP/224) and represent a selection from the total work programme.

VI.V.7

Analysis of the Electric Power situation in Europe

Description:

- (a) Publication of half-yearly bulletins and of an Annual Bulletin of Electric Energy Statistics relating to the countries participating in the Committee's work.
- (b) Publication of a Half-Yearly Bulletin on Conditions of Hydraulicity in Europe
- (c) Consideration of the electric power situation during the previous year and of its prospects on the basis of the concise annual economic study and the more detailed triennial study prepared by the secretariat. The first

triennial study will be issued in its final form in 1967.

VI.V.8

Harmonization of Work in the Field of Energy

Description:

So far as concerns topics for joint study, the Committee has agreed to undertake the following studies in co-operation with the Coal Committee and the Committee on Gas, provided these two committees reach a similar decision:

- (a) Use of natural gas as a fuel in electric power stations;
- (b) Optimum economic exploitation of the aggregate formed by a high-capacity thermal station, the mines which would supply it with coal and the means of transport for conveying the coal to the power station.

VI.V.9

Development of Transfers of Electric Power Across Frontiers

Description:

Economic analysis of the possibilities of transfers of electric power between European countries. At the twenty-third session of the Committee it was agreed that the secretariat should bring its general study of this subject (E/ECE/151, issued in 1952) up to date.

VI.V.10

Economic Selection of Investments in the Electric Power Industry

Description:

The study on this subject has been prepared by an ad hoc group of experts (ST/ECE/EP/34, issued in 1966).

At present the Committee is assisted in its work by five standing working parties which prepare reports and studies on subjects within their competence:

- (a) Group of Experts for the Study of Legal Questions;
- (b) Group of Experts for the Study of Hydroelectric Resources in Europe and their Utilisation;
- (c) Working Party for the Study of Rural Electrification;

(d) Working Party on Electric Power Statistics;

(e) Working Party on Thermal Power Stations;

Certain work projects within group (b) and (c) above are more particularly relevant to questions of industrialization.

VI.V.11

Hydroelectric Resources in Europe and their Utilization

The following project items constitute a selection from the work of the Group of Experts working in this field.

Hydroelectric Potential of Europe's Water Resources; its Assessment and Geographical Distribution

In continuation of earlier studies prepared in this field, the secretariat is preparing a definitive study with the above title, containing also an international map of surface potential throughout Europe. It will be issued in 1967 a document ST/ECE/EP/10/Rev.1.

Evaluation of Maximum Hydroelectrics Storage and Pumped Storage Potential in Europe and the Role of Water Recycling by Pumping with Daily or Weekly Cycle in Hydroelectric Plants and Multiple-Purpose Schemes

A report on this subject is at present being drawn up in provisional form for issuing in 1966.

Elaboration of Methodology for the Assessment of an Available Hydropotential and Related Problems

A provisional version of a report on this subject has been prepared (EP/WP.27 Working Paper No. 43). The Group's long-term programme includes the study of a number of other subjects including the following:

- Study of the influence of technical and economic trends on the economic utilization of hydroelectric resources;
- The working of hydroelectric plants in a system which also includes thermal plants;
- The most effective methods of increasing the efficiency and economic viability of existing

- multipurpose hydroelectric schemes;
- Relevant aspects of the multi-purpose use of international waterways.

VI.V.12

Problems in the Design and Operation of Thermal Power Stations

The following project items constitute a selection from the work programme of the Working Party dealing with this subject.

Four volumes of reports have already been issued on specific questions. The latest volume, issued in 1966 (ST/ECE/EP.23) contains a report prepared by experts from Poland on "Experience acquired in the operation of thermal power stations consisting of blocks (boiler-turbine-generator-transformer) with a rated capacity of over 100MW".

Advantages and Disadvantages of Outdoor Thermal Power Stations

The purpose of this study is to obtain data at the international level (on the basis of a special inquiry) in connexion with the countries' experience on outdoor thermal power stations, to analyze them and make comparison between their advantages and disadvantages. A preliminary report on the above subject has been published in May 1966 (EP/WP.6/Working Party No. 34). The final text of this study is expected for publication in March 1967 and then it will be examined in detail at the third session of the Working Party on Thermal Power Stations (to be held in 1967).

Problems of Fuel Transport to High-Output Thermal Power Stations

As the cost of fuel transport is becoming a major item of the total operating cost, and the need for its radical reduction is more and more keenly felt, a particularly pressing task of this study is to select the most suitable method of fuel-handling throughout its extraction, homogenization, transport to the power station, storage and displacement in the store and arrival at the crushing mills.

Use of Gas Turbines for Electric Power Production

Three reports have been issued previously by the secretariat on the above subject. They traced the

development of gas turbines for electric power production and contained particulars on the technical and economic characteristics of certain units in operation or planned. The present report contains additional information on the recent development of gas turbines and certain considerations on the use and development prospects of gas-steam cycle units. It has been issued in April 1966 in preliminary form. The final report will be issued in 1967.

ECE Projects on coal

VI.VI3

Analysis of the Situation and Prospects of the Coal Industry in Europe

Authority:

Coal Committee decision taken in 1958

Description:

- (a) Publication of a quarterly and of an annual bulletin of coal statistics relating to the countries participating in the Committee's work
- (b) Consideration of the situation of the coal industry during the previous year and of its prospects, on the basis of the annual economic study prepared by the secretariat.
- (c) Examinations of the trends of solid fuel consumption by sectors, and the various factors likely to affect the coal situation in Europe, more especially the development of other forms of energy.

VI.V.14

Coal Mining Problems

Authority:

Coal Committee decision taken in 1960

Description:

Consideration of the short-term and long-term problems of coal production in its scientific, technical and economic aspects. The programme of work of the Sub-Committee on Mining Problems for 1967/1968 includes two main problems:

- Use of computers in the European coal-mining industry;
- Concentration indices in the European coal-mining industries.

The automation and mechanization of mining operations

are kept under continuous review by the Sub-Committee.

VI.V.15

Productivity in the Coal Industry

Authority:

Decision of the Group of Experts on Productivity at its fourth session approved by the Sub-Committee of Mining in July 1966.

Description:

Study of the problems of improving productivity in the coal industry, such as the mechanization and automation of mining operations, the concentration of production, methods of working etc.

The programme of work for the years 1967/1968 includes five main items:

- Methods of working thick seams;
- Methods of working thin seams;
- Measures adopted with a view to improving machine utilization at the face including telemonitoring of information;
- Problem of investment relating to production at mechanized faces;
- Underground transport.

VI.V.16

Exploitation of Coal at Great Depth

Authority:

Decision of the Sub-Committee on Mining Problems in 1963.

Description:

Study of problems caused by the increasing depth at which mining operations are conducted, such as the control of gas, dust and heat, methods of combating the various forms of rock pressures, the layout and preparation of coalfields etc. The Group of Experts on the Exploitation of Coal at Great Depth will study, in 1967, the economic aspects of ventilation.

VI.V.17

Opencast Mining

Authority:

Coal Committee decisions in 1965.

Description:

Study of the problems raised by opencast mining, such as the mechanization and automation of excavation operations, the modernization of trans-

port, the reclamation of land, the organization and economy of workings etc.

The two main problems to be studied by the Group of Experts on Opencast Mining in 1968 are:

- (a) The present situation as regards opencast mining and prospects for its development during the next ten years;
- (b) Mechanization of operations at opencast workings.

VI.V.18

Operational Research on the Coal Industry

Authority:

Sub-Committee on Mining Problems decision in 1962.

Description:

Since operational research is a relatively new science, it is as yet difficult to indicate precisely the extent to which it can be applied in the coal industry. Operational research is taken in the broad sense of a method of rational analysis that can be used to solve problems in respect of which quantification is difficult and for which a number of different solutions are possible. A study has been carried out on the use of mathematical and operational research methods in the coal-mining industries of Europe.

The Ad hoc Group of Experts on Operational Research undertakes studies of specific subjects referred to it by the Sub-Committee on Mining Problems.

VI.V.19

Solid Fuel Utilization

Authority:

Coal Committee decision in 1949.

Description:

Consideration of problems relating to the efficient utilization of solid fuels. The Sub-Committee on Solid Fuel Utilization works continually on specific studies of the utilization of solid fuels in the different consuming sectors. At the present time it is envisaged that the main subjects for study will be as follows:

- Coking problems;
- Utilization of solid fuel in the domestic sector;
- Methods for the quality control of coal.

VI.V.20

Coking Problems

Authority:

Sub-Committee on Solid Fuel Utilization decision.

Description:

The present programme of work of the Group of Experts on Coking is mainly concerned with the following problems:

- (a) Mechanisation and automation in coking plants;
- (b) Economic aspects of the coking industry;
- (c) Air pollution by coking plants;
- (d) Chemical products obtained in the coking process;
- (e) Pollution of water outside coking plants by liquid effluents from such plants.

VI.V.21

Utilisation of Ash

Authority:

Utilisation Working Party Decision in 1958.

Description:

Consideration of all problems connected with the utilisation of ash from thermal power sections.

The programme of work on which the Group of Rapporteurs on the utilisation of ash is engaged includes the following topics:

- (a) Economic and commercial conditions for the utilisation of ash;
- (b) Manufacture and utilisation of light-weight aggregate made of sintered ash;
- (c) Manufacture of cements and compacts agglomerates from ash;
- (d) Programmes of basic research

ENE Projects on Gas

VI.V.22

Use of Oil Products by the Gas Industry for the Manufacture of Town Gas and Gas Interchangeable with Natural Gas and the Recently Developed Relevant Processes

Authority:

Decision taken by the Committee on gas at its 1963 session.

Description:

Survey on the extent of use of oil products by

the gas industry in making manufactured gas and the recent developments in making a gas capable of replacing natural gas. It is expected that the study may be completed in the course of 1967.

VI.V.23

The Use of Gas in the Glass Industry

Authority:

Decision taken by the Committee on Gas at its eleventh session in 1965.

Descriptions:

Survey on the use of gaseous fuels by the glass industry, with a view to determining the extent to which the use of gas is particularly desirable from the point of view of both the glass industry's needs and the requisites of the gas industry. The report is ready for consideration by the Working Party on the preferential uses of gas, and it may be issued by the end of 1966.

VI.V.24

The Use of Gas in the Iron and Steel Industry

Authority:

Decision taken by the Committee on Gas at its eleventh session in 1965.

Descriptions:

Survey of the use of gaseous fuels, particularly of natural gas, in the blast-furnace, open-hearth furnaces, reheat furnaces, in foundry cuplas and in pig-iron smelting in regenerative-type furnaces. The report may be issued during the course of 1967.

VI.V.25

The Use of Gas in the Chemical Industry

Authority:

Decision taken by the Committee on Gas at its twelfth session in 1966.

Descriptions:

Study on the use of gas in the chemical industry for the production of ammonia, acetylene and methanol, with a view to determining the extent to which the use of gas is particularly desirable from the point of view of both the chemical industry's needs and the requisites of the gas industry.

The draft questionnaire to collect the necessary information for the study will be examined by the Working Party on the preferential uses of gas at its second session to be held 24-26 October.

VI.V.26

Use of Gas by Electric Power Stations

Authority:

Decisions taken by the Committee on Gas at its eleventh session in 1965.

Description:

Utilisation of natural gas as a fuel in electrical power stations and as a second fuel in booster power stations with a view to the greater efficiency of the operation of gas pipelines. Study undertaken jointly by the Gas and Electric Power Committees.

The Working Party on the preferential uses of gas has been working on the plan of study and will decide on how to proceed with it further at its second session to be held 24-26 October, 1966.

VI.V.27

Use of Gas for Space-Heating Purposes

Authority:

Decision taken by the Committee on Gas at its eleventh session in 1965.

Description:

Survey on the extent of use of gaseous fuels for space-heating purposes, types of space-heating appliances and equipment and related problems concerning their installation, operation and safety. The study will also include measures taken to promote the use of gas for space-heating purposes.

A detailed questionnaire has been circulated on the subject and the replies received will be examined by the Working Party on the preferential uses of gas at its second session 24-26 October 1966. The study may be completed and published during the course of 1967.

VI.V.28

Economic Aspects of the Use of Non-Metallic and Aluminium Pipes for the Transport and Distribution of Gas

Authority:

Decision taken by the Working Party on the transport of gas at its first session in 1966.

Description:

Appraisal of the economic advantages of the use of non-metallic and aluminium pipes for the

transport and distribution of gas. The study will also include a survey on the materials used for the manufacture of non-metallic and aluminium pipes.

The necessary information for the study is being collected and a consolidated paper on the subject will be issued during the course of 1967.

VI.V.29

IAEA project: Study Group Meeting on Problems and Prospects of Nuclear Power Applications in Developing Countries

Description:

The project covers current technical and economic status of nuclear power (recent development and experience with nuclear plants, cost and economics of nuclear power plants); the need for and prospects of nuclear power in the Far East, Southeast and Southern Asia (nuclear power programmes in the region, specific nuclear power projects and studies, possible impact of nuclear power on scientific and technical developments); planning and implementation of nuclear power programmes (assessment of prospects of nuclear power in a country, methodology of conducting pre-investment and feasibility studies for nuclear power, extrapolation of cost data from the industrialized to the developing countries, considerations in selecting power reactor systems for the near future and the long term, regulatory aspects such as the need for adequate safety regulations, legislation and licensing procedures, technical manpower requirements, financing problems, consideration in bid evaluation and comparison, special problems in constructing, operating and maintaining nuclear plants in developing countries).

Durations:

2-7 November 1966.

Estimated cost and source of funds:

IAEA budget/Philippine Government

VI.V.30

IAEA project: Pre-investment Study on Power, including Nuclear Power, in Luzon, the Philippines

Authority:

UNDP

Description:

To study the power situation in Luzon and to suggest possible solutions, including nuclear power.

Duration:

February 1964 - June 1966.

Estimated cost and source of funds:

\$700,500; UNDP/Philippine Government.

UNDP/Philippine Government
Source of funds

W. Miscellaneous Industries

VI.W.1

ECA project: Studies For the Conference in Economic Co-operation in West Africa

The following studies were proposed by ECA for the above conference:

- (a) Opportunities for a Packaging Industry in the West African Subregion (E/Cn.14/INR/142).
- (b) West Africa: Feasibility Report on the Electronics Industry (E/Cn.14/INR/130).

CHAPTER VII

INDUSTRIAL RESEARCH

A. Application of New Technological Developments to Industry in Developing Countries

- VII.A.1. ILO project: In a paper entitled "Automation in Developing Countries" (ST/ECLA/Conf.23/L.53) prepared for the Latin American Symposium on Industrial Development, the ILO reported on a field survey carried out in a limited number of developing countries to determine the extent of automation in such countries and the kind of social and economic issues which had developed.
- VII.A.2. IAEA project: Symposium on Radioisotope Tracers in Industry and Geophysics
- Description: This Symposium was held in Prague from 21 to 25 November 1966 to review the state of development of routine uses of radioisotope tracers in industry. Up-to-date developments were described in forty-two papers from nineteen countries.
- Duration: 21 to 25 November 1966.
- Estimated cost and source of funds: IAEA budget.
- VII.A.3. UNESCO project: Conference on the Application of Science and Technology to the Development of Latin America (CASTAL)
- Authority: Resolution 2.311 adopted by the General Conference to UNESCO at its thirteenth session.
- Description: The resolution authorized the Director-General, in co-operation with, and upon the request of Member States concerned, to assess their needs in the field of science and its application. The Economic Commission for Latin America cooperated with UNESCO in the organization and in the substantive aspects of the Conference, which was held in Santiago, Chile, from 13 to 22 September 1965.

This Conference discussed at length four major groups of problems, namely, natural resources and their utilization, human resources and training of scientific and technical personnel, application of science and technology to the industrial development of Latin America, and scientific and technological policies and instruments for their materialization.

The debates resulted in a number of recommendations, all of them bearing more or less directly on matters of importance to the development of the countries and in particular to industrial development. The matter of imbalance between existing manpower and the needs for development, the imbalance between research work and the teaching activities of staff in universities and other institutions, the imbalance between the quality of the scientific and technological personnel and the facilities available for research as well as for employment of this personnel were considered as elements detrimental to the process of development.

It was emphasized that scientific and technological research should be oriented towards problems related to economic development, and that at the same time there was a need to intensify and raise the level of these activities. As a means of achieving this, the Conference passed recommendations on the establishment of science policy machinery in the countries. In order to facilitate the sharing of experience and to stimulate the countries in this task, periodic meetings of the personalities responsible for science policy were envisaged. The first of these meetings was held in Buenos Aires in July 1966.

Closer links between applied research institutes and industries and the desirability that scientific and technological research should play a more important role in the transfer of existing technology in adapting it to the prevailing local conditions, and of course in the development of autochthonous technology, were considered key elements in industrial development. No less importance was given to the fact that a knowledge of the natural resources was a requisite for their utilization.

Among other measures to promote realization of the aims as briefly described above, the Conference recommended the creation of a Latin American Centre for the Application of Science to Development. This Centre would undertake studies and surveys, and would develop documentation services as a support for its promotional activities. The aims pursued would be the identification of the technological problems that hamper the region, evaluation of the work being

done by various institutions in the region, analysis of the technical education systems in the light of local conditions, with a view to making appropriate recommendations to the Governments and institutions, ensuring that the efforts of the latter are co-ordinated, and channelling national and international resources to technological development of the region. The present trend towards the integration of the region was every-present in the delegates' minds and is reflected in the nature of the resolutions passed.

It is proposed to hold further regional conferences in the future on the application of science to development.

VII.A.4.

IAEA project: Regional Training Course on Industrial Applications of Radioisotopes, Mexico City

Description:

The curriculum covered all routine uses of radioisotopes in industry. A major emphasis was placed on practical illustrations of these techniques and experiments were conducted in factories and in the laboratory. Basic theory was kept to a minimum consistent with a proper understanding of the subject. Also discussed were subjects such as methods of convincing industrialists to adopt the best modern techniques including radioisotopes where appropriate.

Duration:

7 November to 2 December 1966.

Estimated cost and source of funds:

IAEA budget.

VII.A.5.

IAEA project: Advisory Mission to the Far East in Industrial Applications of Radioisotopes

Description:

In order to make contact with groups working on industrial uses of radioisotopes, to learn of the applications in which they are interested and hear the problems which they have and give appropriate advice, a one man advisory mission visited the Republic of Korea, China, the Philippines, Thailand and Pakistan. In each of these countries groups of three to ten scientists are charged with promoting industrial uses of radioisotopes, mainly the well-established techniques. Their main problems are due to lack of practical experience of the techniques, particularly the latest developments, and of the methods most effective in convincing industry to adopt the best modern techniques.

Duration:

13 May - 9 June 1966 (18 man-days).

Estimated cost and source of funds:

IAEA Budget.

B. Establishment and Operation of Industrial Research Institutions

UNESCO projects.

VII.B.1.

The current programme on a survey of engineering laboratories is being continued in order to produce descriptions, plans and specifications of prototype laboratories in the various branches of engineering. The related project dealing with standards institutions and testing laboratories in support of the technical assistance and Special Fund projects executed by UNESCO is also carried out.

VII.B.2.

UNESCO is attempting to ensure that all nations have access to multidisciplinary research services. However, it is not practical to establish large multidisciplinary facilities in each country or region but it is practical to encourage the development of national research facilities in specific fields and to arrange for co-operation between such institutions and to make their services available to the region. Thus UNESCO is conducting initial efforts in Asia towards forming an informal network of research institutions. The first field being explored is that of instruments, including joint use, repair on loan. Surveys are being conducted on the research services available in order to assess national and regional needs and priorities.

VII.B.3.

The following three studies begun in 1964-1965 have been completed during 1966 and will be published early in 1967:

a guide for the design, construction and maintenance of rural roads in tropical countries;

a simplified international code of practice for reinforced concrete;

recommendations on the safety of reservoirs.

The information from these studies can be used by appropriate organizations for follow-up action.

VII.B.4

A study of the basic characteristics and requirements of national testing laboratories, commenced in 1965, is being continued.

VII.B.5

ECA project: Industrial Research Facilities Available and Needed in the East and West African Subregions

Authority:

Standing Committee on Industry and Natural Resources.

Description:

The study on West Africa (E/CN.14/INR/123) considered these urgent needs and recommended a combination of national and multinational institutions in industrial research for the West African countries and the early reinforcement of existing institutions.

VII.B.6

CID project: Industrial Research and Development News (formerly the Industrial Research News)

Authority:

Committee for Industrial Development, fifth and sixth sessions.

Description:

The Industrial Research News was designed as a communication medium between industrial research institutes. The first two issues, which appeared in 1966, carried information on the organization and management of industrial research institutes and their current research and development projects, co-operative activities, problems and achievements as well as biographic sketches of men prominent in industrial research, information on forthcoming research events and meetings, reviews of directories of research and development organizations and other closely related matters.

The Committee for Industrial Development, at its sixth session felt that the News could better fulfil its goals if its scope were broadened to include information on industrial development as well as industrial research, and if it were to appear more frequently than twice a year. Consequently, starting with the January 1967 issue, the News will include also information on industrial development corporation, chambers of commerce and industry, engineering and management consultants organizations, industrial standardisation organizations and other topics concerned with industrial development. Under current planning, the publication will change its title to Industrial Research and Development News and will appear on a quarterly basis in both English and French.

The News is edited and prepared by CID staff with the assistance of a consultant; articles are contributed by external collaborators.

Duration: Initiated in May 1965; this is a continuing project.

Estimated cost and source of funds: Consultants costs plus 28 1/2 man-months of staff work; United Nations budget.

VII.B.7 CID project: Manual on the Management of Industrial Research Institutes in Developing Countries

Authority: Committee for Industrial Development.

Descriptions: The primary objective of the Manual is the raising of managerial efficiency in industrial research institutes; while it is difficult to overemphasize the importance of proper management to the success of such an institute, the potential usefulness of the Manual is not limited to this area nor to the related one of training industrial research personnel, including future managers. The Manual will find applications also in the hands of executives and policy makers connected with the conduct of industrial research both in government departments and ministries and in private industrial and commercial enterprises. Economic planners and administrators, chambers of industries, technical assistance experts on international or bilateral aid programmes will, it is hoped, also find in it useful information when dealing with problems pertaining to industrial research management. In particular, those who are faced with the task of planning, operating and setting up industrial research establishments will find many practical suggestions.

The preliminary draft of the Manual was prepared by an external consultant and an expert group meeting; supporting research and the final document were done by CID staff.

Duration: December 1964 - February 1966.

Estimated cost and source of funds: Seventeen man-months of staff work during 1966; United Nations budget.

This project forms part of a continuing research programme begun with preparations for the Interregional Seminar on Industrial Research and Development Institutes in Developing Countries, held in 1965, and closely linked with the operational activities of the Centre as substantive unit of the Executing Agency for a number of projects in the industrial research field.

VII.B.8

CID project: Feasibility Study Considerations for the Establishment of Industrial Research Institutes in Developing Countries

Authority:

Committee for Industrial Development.

Description:

An attempt to apply the same techniques and techniques, economic considerations to the initiation of an industrial research establishment as are usually employed at the inception of an industrial enterprise.

The project is carried out through joint efforts of CID staff members and external collaborators, and forms part of a continuing research programme begun with preparations for the Interregional Seminar on Industrial Research and Development Institutes in Developing Countries, held in 1965; it is closely linked with the operational activities of the Centre as substantive unit of the Executing Agency for a number of projects in the industrial research field.

Duration:

1965-early 1967.

Estimated cost and source of funds:

Two man-months in 1966; United Nations budget.

VII.B.9

CID project: Case studies and Reports in Industrial Research Problems

Authority:

Committee for Industrial Development.

Description:

Designed to be used as source material at the Training Workshop on the Management of Industrial Research Institutes to be held in 1967 under EPTA financing.

The studies consist of actual case histories and analyses of administrative, managerial and policy problems encountered by selected industrial research institutes in both industrialized and developing countries.

The papers are being prepared by expert consultants with assistance of CID staff.

This project forms part of a continuing research programme begun with preparations for the Interregional Seminar on Industrial Research and Development Institutes in Developing Countries, held in 1965, and is closely linked with the operational activities of the Centre as substantive unit of the Executing Agency for a number of projects in the industrial research field.

Duration: Early 1966-early 1967.

Estimated cost and source of funds: \$10,000 in consultants costs plus 2 1/2 man-months (staff); United Nations budget.

VII.B.10

CID project: Organization of Industrial Research in Developing Countries

Authority: Committee for Industrial Development.

Descriptions: Prepared for submission to the 1967 International Symposium on Industrial Development, the study discusses the important issues and policies regarding industrial research as well as the problems of institutional research, finance, staffing, the application of results of research, and possible national and international action. It also deals with national industrial research policies, types of technological and socio-economic research serving industry, feasibility studies, laboratory testing and standards, and all relevant organizational considerations and problems.

It was prepared by an expert consultant with the collaboration of a CID staff member and forms part of a continuing research programme begun with preparations for the interregional seminar on Industrial Research and Development Institutes in Developing Countries, held in 1965; it is closely linked with the operational activities of the Centre as substantive unit of the Executing Agency for a number of projects in the industrial research field.

Duration: April-December 1966.

Estimated cost and source of funds: \$4,000 for consultants plus one man-month; United Nations budget.

UNESCO/UNDP (Special Fund) projects.

The following UNESCO/UNDP (Special Fund) projects of technical assistance in the field of engineering research are being executed.

VII.B.11

The Central Mechanical Engineering Research Institute Durgapur, is practically completed and is likely to be followed up by a decentralized scheme by which mechanical engineering research and development will be carried out in a number of provincial centres in close contact with industry.

VII.B.12

The National Physical Laboratory for Metrology, Cairo, will be the level-A part of the over-all standardization scheme of the United Arab Republic, of which the level-B part is constituted by the Central Laboratory of Metrology and Materials Testing, and level-C by a number of district laboratories.

VII.B.13

The Central Scientific Instruments Organization, Chandigarh, is intended to foster India's production of scientific instruments. It will survey and assess the demand and supply of such instruments for industry, prepare specifications, develop testing techniques and set up advanced training facilities for technicians required for the production of electronic, electrical, mechanical and optical instruments.

VII.B.14

The Industrial Testing and Research Centre, Damascus,

is an independent institution whose purpose is to serve Syrian industry by improving the quality of industrial products through the establishment of suitable standards, specifications and controls, advising industry, aiding in research and development work and training technical personnel.

VII.B.15

The Fine Instruments Centre, Seoul, is to train technicians in repairing, maintaining, recalibrating and manufacturing fine instruments; provide direct services to industry, research institutions, schools etc; provide consultative services to industry and undertake production of prototype types of selected fine instruments of proved reliability.

VII.B.16.

WHO project: India - Central Public Health Engineering Research Institute, Nagpur

This project was completed at the end of 1966. See statement submitted in 1965.

VII.B.17.

Poland - Protection of River Waters against Pollution

As Executing Agency for the UNDP (Special Fund) project, WHO is assisting the Polish Government to strengthen the competent research organizations in the country to enable them to cope with water pollution problems. The project comprises three parts: treatment of industrial wastes, treatment of saline effluents from mines, and treatment of thermal pollution caused by the waste waters of power stations.

VII.B.18.

ECA project: Industrial Research and Standardization in Africa

Authority:

Standing Committee on Industry and Natural Resources, and decisions of the Commission.

Descriptions:

On the basis of studies completed for the East, North and West African subregions, and in co-operation with CID and UNESCO and other specialized agencies, assistance will be provided to Governments on request:

- (a) In the establishment of institutes for industrial research covering both research and development;
- (b) In the adoption of uniform standards.

As resources permit, further studies in depth will be carried out for the Central African subregion.

VII.B.19.

CID project: Central American Research Institute for Industry (ICAIFI)

Authority:

United Nations Development Programme;

Descriptions:

The project is designed to assist the Central American Research Institute for Industry (ICAIFI) which is primarily engaged in the following fields of activity:

- (a) Development of technology applicable to utilization of local raw materials to meet regional needs;
- (b) Industrial feasibility surveys and regional market studies leading to the location and development of industries based on local resources, manpower and markets, with particular emphasis on those industries that contribute to economic integration and regional development;
- (c) Provision of industrial consultant services;
- (d) Establishment of an industrial standardisation centre for Central America;
- (e) Training in the use of modern technical methods and industrial processes, and
- (f) Dissemination of information, technical and other, designed to assist local industry.

In 1966, a Technical Senior Adviser to the Director of ICAITI was appointed.

Assistance is provided through expert and consultant services (108 man-months), fellowships and equipment.

Duration:

1965-1968.

Estimated cost and source of funds:

\$832,500 (exclusive of government contribution);
Special Fund.

VII.B.20

CEB project: National Institute of Industrial Technology,
Argentina

Authority:

United Nations Development Programme.

Description:

The purpose of the project is to assist the National Institute of Industrial Technology in organising new or strengthening existing research laboratory units.

Short-term experts in a variety of industrial research fields were assigned to the Institute.

Durations: 1965-1966.

Estimated cost and source of funds: Fifteen man-months; Expanded Programme of Technical Assistance.

VII.B.21 CID project: Institute for Technological Research (IIT),
Colombia

Authority: United Nations Development Programme.

Description: CID support to the IIT is designed to assist it in carrying on the following activities :

- (a) Provision of technical assistance in developing operating techniques for improved utilization of raw materials and equipment and provision through consultation, seminars and publication of existing technical knowledge not otherwise readily available;
- (b) Assistance to private and public agencies in order to attain higher productivity, e.g. through establishment of quality control systems;
- (c) Undertaking of technical and market feasibility studies of new products, and
- (d) Training of the technical personnel required to maintain the higher level of research to be developed at the IIT during and after the conclusion of the Special Fund project. Training may be provided for the technical staff in special instances where operating procedures can be demonstrated in the pilot plants at IIT.

Assistance to the IIT during 1966 was primarily in the fields of metallurgy and plastics. A foundry specialist and two mechanical engineers joined the international staff of the Institute. Two specialists in plastic production undertook a short-term mission to survey the industry in Colombia; in collaboration with a third expert already assigned to the IIT, they have prepared a report and a programme for a plastics centre which would be maintained by the IIT and the enterprises in the plastics industry as a co-operative endeavour. A chemical engineer attached to the staff completed his advanced training in

plastics problems under a United Nations fellowship and rejoined the IIT. An expert in research administration prepared an analysis of the IIT's operations and delivered a series of lectures to its staff.

Assistance is being provided through expert services (198 man-months) and fourteen fellowships in metallurgical, mechanical, industrial and chemical engineering, food technology, industrial economics and industrial estates, equipment.

Duration:

1961-1967.

Estimated cost and source of funds :

\$601,500 (exclusive of government contribution);
Special Fund.

VII.B.22

CID project: Industrial Research Centre, Israel

Authority:

United Nations Development Programme.

Description:

The project is to assist the Government in establishing, and initially operating, an Industrial Research Centre which will promote the application of the findings of basic research to production as a means of accelerating industrial development. The Centre will concentrate on medium and long-range industrial research for application to new or improved products and processes, assistance to industry by consultation, by dissemination of scientific and technological information, and by technical and economic analysis of new and promising technological products and processes.

The work of the Centre will be devoted to those areas, such as food technology, plastics, textiles and fibres, minerals and other industrial chemistry, which are of primary significance to potential export industries. The project will focus on developing the individual laboratories necessary to achieving this purpose and on creating a solid central base on which the Centre can grow. An in-service training programme, comprising both short-term and long-term study will be organized at the Centre to develop technical manpower. The Project Manager took up his post, after a briefing at Headquarters, at the end of 1966. Assistance is provided through expert services (245 man-months), thirty-six fellowships and equipment.

Duration: 1966-70.

Estimated cost and source of funds: \$1,267,100 (exclusive of government contribution); Special Fund.

VII.B.23 CID project: Industrial Research, Libya

Authority: United Nations Development Programme.

Description: The purpose of the project is to assist the Industrial Research Department of the Ministry of Industry.

A Senior Industrial Research Chemist has been assigned for an initial two-year period to assist the Department in organizing and improving its operations.

Duration: April 1966-1968.

Estimated cost and source of funds: Twenty-four man-months; funds-in-trust.

VII.B.24 CID project: National Institute for Scientific and Industrial Research (NISIR), Malaysia

Authority: United Nations Development Programme.

Description: A senior industrial research adviser is being sent to Kuala Lumpur to carry out a survey of existing industries with the purpose of determining their needs in research and information, and to make recommendations on the basis of the survey concerning the technical orientation that the Institute should take in order to meet the needs of industry. He is also expected to examine the legislation covering the establishment of the proposed Institute, and make recommendations for relevant changes if necessary, to assist in the formulation of the Institute's general policies and joint work programme, and in the preparation of a request to the UNDP (SP) for assistance in the preliminary phase of NISIR. He is to determine the requirements of the NISIR in national technical personnel and prepare a list of equipment required.

It is expected, should the UNDP Governing Council approve the government request, that UNIDO will be named as Executing Agency of the project.

Duration: December 1966-March 1967.

Estimated cost and source of funds: Four man-months; Expanded Programme of Technical Assistance.

VII.B.25 CID project: Technical Standards Institute, Paraguay

Authority: United Nations Development Programme.

Description: The purpose of the project is to assist the Institute:

- (a) In elaborating, in co-operation with industry representatives, norms and standards for construction materials, foodstuffs, vegetable and essential oils, fibres and textiles, hides and leather, and
- (b) In assisting industry in upgrading the quality of both export products and those intended for domestic consumption.

Assistance is provided through expert services (240 man-months) and five fellowships in the fields of food technology, construction materials, hides and leather, fibres and textiles, and material testing and quality control; equipment.

Duration: 1964-1970.

Estimated cost and source of funds: \$679,815 (exclusive of government contribution); Special Fund.

VII.B.26 CID project: Industrial Research Institute, The Sudan

Authority: United Nations Development Programme.

Description: Assistance to the Industrial Research Institute in Khartoum is designed to aid and promote the industrial and economic development of the country through the application of industrial research and technology, its adaptation to the country's conditions and resources, and by the creation of a

broadly available local source of practical information, assistance, professional advice and counsel on processes, standards and efficient techniques of industrial production, costing, organization and management technology. The project will also enable the Institute to encourage the development of Sudanese technical personnel essential to accelerated economic development of the country.

During 1966, a new Project Manager was intensively briefed at Headquarters and took up his duties in Khartoum. Experts in industrial cost accounting (replacing the previous incumbent) and in analytical chemistry joined the international staff. Staff members of the Institute completed advanced training, under United Nations fellowships, in industrial microbiology, mechanical engineering and analytical chemistry; a fellowship in chemical engineering was granted in 1966.

Assistance is being provided through expert services (252 man-months) and six fellowships in various chemical, engineering and management fields; equipment.

Duration: 1965-1969.

Estimated cost and source of funds: \$748,900 (exclusive of government contribution); Special Fund.

VII.B.27

CID project: Technological Research Institute, Thailand

Authority: United Nations Development Programme.

Description: The project is designed to assist in the development of the Technological Research Institute, one of the specialized organizations of the Applied Scientific Research Corporation of Thailand, and specifically responsible for the distribution of technical information of potential value to industry and for research in and studies of the economic and technical factors involved in the development of indigenous industries.

A specialist in non-metallic minerals joined the international staff of the Institute during 1966; a short-term consultant in industrial microbiology completed his mission and submitted proposals for the future programme of research.

Assistance is being provided through expert services (240 man-months) and eight fellowships in the fields of chemistry, metallurgy and construction materials; equipment.

Duration: 1964-1969.

Estimated cost and source of funds: \$846,300 (exclusive of government contribution); Special Fund.

C. Establishment of Testing Laboratories

No reports have been received for projects under this heading.

D. Definition and Adoption of Industrial Standards and Specifications

VII.D.1

ECA project: Standardization in Africa

The sixth and seventh sessions of the Economic Commission for Africa emphasized the need to co-ordinate standardization in Africa and, in particular, the standards applicable to weights and measures, energy, transport, export products, manufactured goods, machinery and equipment. ECA was further required to undertake a study describing the present situation in the field of standardization and to suggest a suitable organizational structure for Africa.

In pursuance of this, ECA prepared a number of studies, both on regional and subregional bases, and during 1966 the following studies were made:

- (a) "Standardization in the West African Subregion" (E/CN.14/INR/116);
- (b) "Standardization in the North African Subregion" (E/CN.14/NA/ECOP/6).

VII.D.2

CID project: The Role and Problems of Standardization in Industrial Development

Authority:

General Assembly resolution 1940 (XVIII); Economic and Social Council resolution 1081-B (XXXIX).

Description:

A study to be presented to the International Symposium on Industrial Development.

The study will cover the recent developments in, and present situation and future prospects of standardization in the developing countries of Latin America, Africa, and Asia.

It will be prepared in the Centre on the basis of regional papers prepared by experts working in the field.

The study will also be used for briefing technical assistance experts and for formulating technical assistance projects.

Duration:

June 1966-January 1967.

Source of funds:

United Nations budget.

VII.D.3

UNESCO project: Engineering Codes for the Developing Countries

Between 27 and 29 June 1966, a meeting of representatives of the major international engineering associations was held at UNESCO House. Representatives of twenty engineering associations of the International Bank for Reconstruction and Development, and the Organization for Economic Co-operation and Development attended. The purpose of the meeting was to consider the feasibility of drafting other engineering codes most urgently needed in the developing countries.

VII.D.4

ECAFE project: Standardization in Asia

Authority:

First Asian Conference on Industrialization, Asian Industrial Development Council, Committee on Industry and Natural Resources and the Commission.

Description:

The purpose of the project is to develop standardization activity in the countries of the region, and to connect it with other regions as well as with the international organizations on standardization.

There is undoubtedly a close relationship between industrial research and standardization. Smooth and accelerated development of industries cannot be achieved without due recognition and adoption of standards in respect of materials, equipment, methods, procedures and processes. The secretariat has, in the past, devoted considerable attention to this question, particularly in the field of electric power and metals and engineering. The first Asian Conference on Industrialization also emphasized the urgency of this problem and recommended, among other things, the establishment of a regional standards committee as a subordinate body of the Commission. The AIDC endorsed these recommendations and supported the proposal to convene a meeting of the heads of standards institutions in the region to consider ways and means of expanding the standardization activity. The proposed meeting was held in Bangkok from 12 to 19 December 1966. The main purposes of the meeting were (a) to review the present status of standardization activity in the countries of the region, (b) to consider and formulate assistance which the ECAFE could and should provide to those countries having no standardization activity at

present in organizing, as appropriate, standards institutions and developing standardization activity, (c) to consider the usefulness, scope and functions of the regional standards committee recommended by the Asian Conference on Industrialization and formulate recommendations to the secretariat for further follow-up action, (d) to consider questions relating to the training of standards engineers.

Duration:

The Working Group recommended that the first meeting of the Asian Standards Committee should be organized as soon as practicable and thereafter it should meet at yearly intervals.

VII.D.5

ECA project: Industrial Research and Standardization in Africa

See entry No. VII.B.18.

VII.D.6

EOAPE project: Technical Assistance on Standardization in Asia

Authority:

First Asian Conference on Industrialization, Committee on Industry and Natural Resources and the Commission.

Description:

The EOAPE secretariat, with the co-operation of United Nations Development Programme, is hoping to make available to the countries of the region the services of a regional adviser on standardization in 1967.

Duration:

Scheduled tentatively for six months each in 1967 and 1968.

Estimated cost and source of funds:

\$25,000 for the two years 1967 and 1968; technical assistance funds.

E. Technical Problems of Industrial Quality Control
in the Developing Countries

VII.E.1

CID project: Quality Control in Developing Areas

Authority:

Committee for Industrial Development, sixth session.

Description:

A study on the definition of attitudes and requirements in quality control appropriate to different stages of industrial development, related to selected industry sectors.

It covers quality in the modern economy, quality in developing areas and their realization.

The study is being prepared by an expert on quality control techniques.

It will also be used for briefing technical assistance experts and formulating technical assistance projects.

Duration:

July-December 1966.

Estimated cost and source of funds:

\$1,000; United Nations budget.

F. Adaptation of Technology

No reports have been received for projects under this heading.

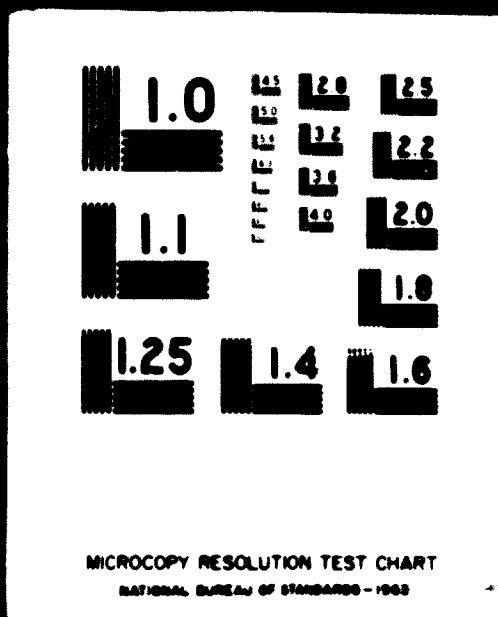


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Chapter VIII

INDUSTRIAL INSTITUTIONS

A. Industrial Promotion and Development Organizations

VIII.A.1

CID project: Organization and Administration of Public and Semi-Public Agencies in the Field of Industrial Development

Authority:

Committee for Industrial Development

Description:

Surveys to determine the types and number of such institutions, their similarities and dissimilarities, the relative effectiveness of alternative organizational patterns in promoting industrial development; and to provide background material for a regional seminar on industrial institutions in developing countries. The seminar, to be convened in 1967, will consider and make recommendations for strengthening the organizational and administrative effectiveness of existing agencies and for establishing new ones.

The functions covered by the surveys included the following: establishment of industrial policies, aims and objectives; planning of industrial development; research and development, statistics, testing and standardization; industrial promotion; machinery for administering public industrial enterprises; industrial financing; technical training; industrial advisory and extension services; legal and regulatory services.

Field studies in a representative sample of Asian and African countries were completed in 1965. During 1966, studies were undertaken in the following countries, for which reports are now being prepared: Argentina, Chile, Colombia, Jamaica, Mexico, Puerto Rico, Trinidad and Tobago, Uruguay and Venezuela.

Field studies and reports by expert consultants and CID staff members.

This study programme is designed to supply the basic source material for the operational activities of the Centre in the field of industrial services. In addition to supplying material for the seminar mentioned above, the country studies have been, and will be, used for briefing experts, and for developing new concepts of technical co-operation.

Duration: 1965 - December 1966

Estimated cost and source of funds: Consultants plus six man-months (staff); United Nations budget.

VIII.A.2 CID project: Directory of Industrial Agencies

Authority: Committee for Industrial Development

Description: The purpose of the project is to provide a comprehensive listing of industrial agencies in all countries and to serve as a reference guide for potential investors.

As a first step in determining methodology, an external consultant has prepared a feasibility study covering the different alternatives for collection and presentation of the data and containing, as a sample, comprehensive lists of agencies in four countries.

Location: The project forms part of an integrated research programme designed to strengthen operational activities in the field of industrial services.

Duration: March 1966-1967.

Estimated cost and source of funds: \$3,000 in consultant funds in 1966; United Nations budget.

VIII.A.3 CID project: Administration of Industrial Activities in Developing Countries

Authority: Committee for Industrial Development.

Description: A paper prepared for the International Symposium on Industrial Development, to investigate the entire range of supporting services and the institutional framework required in industrial development. It discusses the machinery for the establishment of aims, policies and objectives, planning mechanisms, administration of research and development, industrial promotion, organisation of industrial enterprises, financial institutions, advisory and extension services and legal and regulatory services. Prepared by an external consultant in co-operation with a staff member of CID.

Duration: June 1966-early 1967.

Estimated cost and source of funds: \$4,000 for consultants plus one man-month (staff); United Nations budget.

VIII.A.4

ECAFE project: Regional Industries Promotion and Planning Centre

Authority:

Decision of the Economic Commission for Asia and the Far East taken at its twentieth session

Description:

The purpose of the Centre was to plan and promote industries of a joint-venture nature on a long-term basis. As defined by the Committee on Industry and Natural Resources, the Centre's tasks were:

- (a) To collect and circulate information regarding national industrial development plans and study and analysis of such plans;
- (b) To carry out studies of sectors of industries in order to identify those which appear to hold the greatest promise for fruitful co-operation;
- (c) To provide assistance to countries of the region at their request.

The Centre's services were available to Governments on request for advice on identification and promotion of industries with export potential. During 1966, it rendered advisory services twice to the Government of Singapore for a total period of twelve weeks. This work included feasibility studies on the development of caustic soda, plastics and petrochemical industries. Also a paper was prepared entitled "The Fertilizer Requirement in the ECAFE Region". The Centre also participated in the preparatory work connected with the seminar on Man-Made Fibres. Among other activities of the Centre were the preparation of documents for the Asian Industrial Development Council and the Committee on Industry and Natural Resources and the publication of Industrial Development News, the first issue of which is a review of industrialization in Asian countries during the decade 1953-1963. For the first session of the Council, the Centre prepared (a) "Approaches to Industrial Harmonization and Co-operation in ECAFE Countries", (b) "Summary of National Development Plans in the Countries of the ECAFE Region", and for the second session a paper entitled "Problems of Industrial Integration among Developing Countries".

For the nineteenth session of the Committee on Industry and Natural Resources, to be held from 7 to 14 March 1967, the Centre prepared a study entitled "Prospects for Industrial Exports and Measures for their Increased Production and Trade, with Special Reference to ECAFE Developing Countries".

A joint ECAFE/UNCTAD study on Export Possibilities of Manufactures and Semi-Manufactures from Selected ECAFE Developing Countries is being conducted by a consultant provided by UNCTAD.

Duration:

The Centre came into being on 1 January 1965 and ceased operations on 31 December 1966 when its functions were taken over by the newly established Asian Industrial Development Council.

Estimated cost and source of funds:

\$40,000 per year; technical assistance funds.

B. Industrial Property

VIII.B.1

Fiscal and Financial Branch Project: The Role of Patents in the Transfer of Technology to Developing Countries (United Nations Publication, Sales No.: 65.11.B.1.)

Authority:

General Assembly resolution 1713 (XVI).

Description:

In response to General Assembly resolution 1713 (XVI), the Fiscal and Financial Branch prepared the above study which contained a comprehensive review of the major characteristics of national patent laws and the international patent system as well as a thorough analysis of the economic implications of the introduction of patents in developing countries.

See also:

Follow-up studies under entry No. 11.1.2 on the role of enterprise-to-enterprise arrangements in the transfer of patented and unpatented technology to developing countries.

VIII.B.2

VIII.B.3

Fiscal and Financial Branch projects:

On the basis of the Secretary-General's recommendations in his above-mentioned report on patents, two project proposals have been prepared, one for the establishment of regional patent co-operation centres, the other for a central training institute for industrial property administration. The former project will enable Governments of developing countries to pool their resources for the examination of patent applications, possibly in co-operation with the International Patent Institute, I.I.B. at the Hague. The training institute will provide special training facilities for government officials engaged in industrial property administration. The Fiscal and Financial Branch and the International Bureau for the Protection of Industrial Property (BIRPI) are being consulted on these projects.

C. Industrial Information and Documentation Services

VIII.C.1

CID project: Measures for the Transfer of Industrial Information

Authority:

Committee for Industrial Development

Description:

A paper prepared for submission to the International Symposium on Industrial Development which reviews the activities and structures of well-established industrial information services and analyses the need in the developing countries for industrial information in the broadest sense (i.e., including information on technological know-how, business management, industrial regulations etc.

The study will also provide source material in the elaboration of enlarged technical assistance activities in the field of industrial development.

The paper was prepared by an external consultant.

Duration:

March 1966 - end of 1966.

Estimated cost and source of funds:

\$4,000; United Nations budget.

VIII.C.2

CID project: Industrial Inquiry Service

Authority:

Committee for Industrial Development

Description:

The purpose of the project is to assist industries in developing countries in gaining access to technical and industrial information of possible utility to them. This information is the fruit of industrial research or practical experience in areas which have already been faced with problems similar to those now being encountered by the newer enterprises in the industrializing countries.

Over fifty specific requests for industrial information have been dealt with. For example, substantial information originating in the Netherlands, the United Kingdom, the United States and the USSR was supplied to the Government of the United Arab Republic in answer to a query about the production of rice-bran oil; a problem in Thailand concerning precision casting with the lost-wax method was resolved with the assistance of information forwarded from Canada, the Federal Republic of Germany, France and Italy.

Duration: Initiated in 1966. This is a continuing operation.

Estimated cost and source of funds: Three man-months (staff); United Nations budget.

VIII.C.3 CID project: Role and Function of Industrial Documentation in Iran

Authority: Committee for Industrial Development.

Description: A CID staff member was sent to Iran to advise the Government on the role and function of industrial documentation.

Duration: November 1966 - February 1967

Estimated cost and source of funds: Three man-months; expanded programme of Technical Assistance.

D. Industrial and Professional Associations of Specific Interest to Industrial Development

VIII.D.1

CID project: Role of Private Organizations in Industrial Development

Authority:

Committee for Industrial Development.

Description:

Conceived as a complement to the study programme on organisation and administration of public and semi-public agencies in developing countries, this study is centered on the role of national non-governmental associations in industrial development.

Reports have been prepared on the position and role of the following organizations: associations of manufactures; professional associations; trade unions and industrial co-operatives.

The reports were prepared by external consultants in collaboration with CID staff members.

Duration:

Spring 1966 - end 1966.

Estimated cost and source of funds:

\$15,000 for consultants plus two man-months of staff; United Nations budget.

E. Industrial Consulting and Advisory Services

VIII.E.1 CID project: Use of Consulting Services in Developing Countries

Authority: Committee for Industrial Development.

Description: A practical manual designed for the use of industries and government agencies is in course of preparation. An original draft of the manual was circulated to approximately 250 development agencies and consulting firms throughout the world; about 100 substantive comments were received in reply. The original source material prepared by the staff of the Centre was submitted to a group of eight experts in the consulting field. These experts also drew on their own considerable practical experience in drafting the final version of the manual. The experts also discussed the practical aspects of establishing local consulting organizations and possible United Nations technical assistance in this field.

The recommendations of the experts and the background research associated with the manual as well as material developed in conjunction with the study similarly titled will serve as a basis for developing operational programmes in the field of consulting and advisory services.

VIII.E.2 CID project: Use of Consultants in Developing Economies

Authority: Committee for Industrial Development.

Description: A paper prepared for the International Symposium on Industrial Development to examine all aspects of the utilization in developing countries of consulting services, including the use of consultants and consulting firms based in the industrialized countries, co-operation between consulting firms and agencies in both the developed and developing countries, and the possibility of assisting in the creation of such services within the developing countries. For submission to the International Symposium. The paper was prepared by an external consultant in co-operation with a staff member of CID.

Duration: June - November 1966.

Estimated cost and source of funds: \$3,500 for consultants plus one man-month (staff); United Nations budget.

F. Industrial Co-operatives and Marketing Organizations

VIII.F.1

ILO project:

In order to attain more substantial and durable results in the co-operation field, the ILO has initiated action for a better integrated and broad-based approach so as to make an impact on a number of co-operative actions at the same time. This has led to the concept of National Co-operative Enterprise Development Centres. A document was prepared by the ILO as a guide to a type of well-integrated national centre from which all practical assistance to co-operatives can be concentrated. The Co-operative Enterprise Development Centre, as envisaged, would be technological centres rather than purely teaching institutions. It is proposed that the Centres might be divided into three branches:

- (a) Development and Operational Services Branch, concerned with practical promotional and servicing work in the various fields of co-operative activity;
- (b) Education, Training and Publicity Branch, which would take on most of the functions now carried on by co-operative colleges. Residential training will be for the trainers. Greater emphasis will be placed on practical training at all levels than has been the custom in the past;
- (c) Finance and Research Branch. In addition to its research work, this branch would be further subdivided into two functional sections: Finance Sections and Research and Investigations Section.

Many Governments have expressed interest in this scheme. During 1965 arrangements were made for ILO experts to assist the competent authorities in several countries in preparing the outline of similar centres based on local conditions, to be financed with Special Fund assistance.

Industrial

and also business
plans to service

VIII.F.2.

An ILO expert was sent to Niger for three months to help the Government to improve the structure and operations of building and transport co-operatives and to assist in the general consolidation of the co-operative movement. The project embraces co-operative development on a national basis. An examination was carried out by the expert of the operations and structure of housing and transport co-operatives. This examination provided the basis for the conclusions and further recommendations. The project financed under the Expanded Programme of Technical Assistance, started in September 1965 and was completed in December of the same year.

VIII.F.3

In response to a request from the Government of Chile, the ILO sent an expert on industrial co-operatives to advise and assist the Servicio de Co-operación Técnica in the promotion and development of industrial co-operatives to help small industrialist and artisans in their struggle for existence. The project, involving ten man-months and financed under EPTA, started in September 1964 and was completed in June 1965.

G. Financial Institutions

No reports have been received for projects under this heading.

Chapter IX

CAPITAL INVESTMENT ACTIVITIES

A. World Bank Loans^{2/}

Bank lending during the fiscal year 1965/66 was devoted to increasing the financial resources of ten development finance companies -- five in Colombia and one each in Iran, Israel, Morocco, Pakistan and Tunisia. The details are as follows:

IX.A.1

Colombia: \$25 million loan of May 1966 to the Banco de la Republica.

The proceeds of the loan will be made available to five private development finance companies (financieras) in the country to meet the foreign exchange costs of projects which they finance in the private sector. The loan will enable the financieras to increase their contribution to the industrial development of the country at a time when additional funds are urgently needed for the expected expansion of industrial investment and output. The beneficiaries of the loan are Corporacion Financiera Colombiana in Bogota, Corporacion Financiera Nacional in Medellin, Corporacion Financiera de Caldas in Mainizales, Corporacion Financiera del Valle in Cali and Corporacion Financiera de Norte in Barranquilla. The financieras were established between 1959 and 1963 to provide medium-term and long-term capital to private industry, and to encourage industrial development. They engage in a wide variety of operations including medium-term and long-term lending, import-export financing, equity participations, promotions, underwriting and guarantees. Their operations have had a significant impact on the industrial development of Colombia. In the years 1963/1964, for example, they financed about 16 per cent of the total investment in manufacturing. They have now become the principal private institutions providing medium-term and long-term capital to the private sector and are expected to increase this role in the future.

See also note on activities of the World Bank group in industrial development which appears in annex II.

IX.A.2

Iran: \$10 million loan of July 1965 to the Industrial and Mining Development Bank of Iran (IMDBI)

The loan was made to meet the foreign exchange costs of projects to be financed by IMDBI. The institution was established in 1959 by private investors from Belgium, The Federal Republic of Germany, France, Iran, Italy, United Kingdom, United States and the Netherlands. The primary objective of IMDBI is to stimulate the growth of private industry in Iran and to promote the participation of domestic and foreign private capital in private industrial enterprises. Up to the end of March 1965, IMDBI had made 121 loans totalling Rls #3,262 million (\$43.5 million). The greater part of its loans has gone to food processing, textiles and rubber products. IMDBI has been promoting and assisting in the preparation of industrial projects, and it intends to be still more active in this field in future, particularly in the sugar, paper, steel and glass-making industries.

IX.A.3

Israel: \$20 million loan of September 1965 to the Industrial Development Bank of Israel (IDBI)

IDBI was established in 1957. Its main activity is the provision of medium-term and long-term loans to private industrial enterprises in Israel, but it is also empowered to undertake a wide variety of other functions including participating in the equity capital of enterprises, underwriting and promoting security issues, guaranteeing loans and providing financial and technical assistance to industry. The contribution it has been making to the industrial development of Israel is extremely valuable, and between 1958 and 1964 it financed as much as 40 per cent of net industrial investment in the country. Up to 31 December, IDBI had approved 1,317 loans totalling 2,495.4 million (265.2 million). The World Bank Loan is helping IDBI to continue to play a key part in financing industrial investment.

IX.A.4

Morocco: \$17.5 million loan of May 1966 to the Banque nationale pour le développement économique (BNDE)

The loan will provide BNDE, a private development finance company in Morocco, with the capital it

needs to finance the foreign exchange costs of private industrial investments in the country during the years 1966 and 1967. BNDE is the major institutional source of long-term industrial finance in Morocco. During its existence of over six years, it has assisted new or expanding industrial enterprises which probably accounted for about three quarters of total private industrial investment in Morocco in that period, thus contributing significantly to the economy. With additional resources provided by the Bank loan, BNDE will be able to continue its key role in the further development of Moroccan industry. The loan will increase BNDE's total resources, excluding rediscounting facilities at the Central Bank, to about DH 265 million (\$52.5 million). This is the second loan to be made by the Bank to BNDE. A loan of \$15 million was made in December 1962, and in the following month IFC invested the equivalent of \$1.5 million in BNDE's share capital.

IX.A.5

Pakistan: \$30 million loan of July 1965 to the Pakistan Industrial Credit and Investment Corporation Limited (PICIC)

The loan was made to meet the foreign exchange costs of projects to be financed by PICIC. The corporation was established in 1957 by Pakistani and foreign investors, with the assistance of the World Bank, to assist in the creation and expansion of private industrial enterprises, to encourage domestic and foreign participation in such enterprises and to help create a capital market. As a major source of foreign exchange to private industry, PICIC has made a significant contribution to the industrial growth of Pakistan. From the start of its operation to December 1964, PICIC had approved 405 loans amounting to Pak Rs #785 million (\$163 million) to a variety of industries. Of the total, all but Pak Rs #35.8 million (\$7.5 million) were foreign exchange loans. About half the total number of loans were to new enterprises or for the expansion of existing enterprises and the other half for balancing and modernization of equipment. PICIC has also undertaken a major developmental function in its investigation of new fields for industrial investment, including surveys of a number of industries and in bringing together investors, domestic and foreign, to launch new projects. The loan brought the total amount of Bank lending to PICIC to \$109.2 million.

IX.A.6

Tunisia: \$5 million loan of May 1966 to the Societe Nationale d'investissement (SNI)

The bank and IFC joined the Tunisian Government and investors in Tunisia and Europe to help increase the capital resources of SNI, a development finance company established in 1959. Additional financial resources provided to SNI include a Bank loan of \$5 million and an IFC share investment of D 300,000 (\$571,428). SNI's capital expansion was part of a number of measures undertaken, with IFC's assistance, to reorganize SNI as a vehicle for financing the growth of the private sector in Tunisia. The measures included strengthening of SNI's management and redefinition of its policies to enhance its effectiveness as a source of medium-term and long-term capital and other assistance for private enterprises, particularly in the field of industry and tourism. SNI is also expected to play a part in the development of domestic capital market.

B. IFC Investments

During the fiscal year 1965/66, IFC undertook commitments totalling \$35.6 million to some twenty-one enterprises located in sixteen countries. These investments are assisting a wide range of projects, including pulp and paper in Brazil, cement in Greece and Malaysia, steel in Brazil and Mexico, food processing in Morocco, livestock production and warehousing in Colombia, textiles in Ecuador, and development finance companies in Greece, Liberia and Tunisia. The year's total compared with the previous high of \$26 million reached in the 1964/65 fiscal year. A list of IFC investment commitments in 1965/66 fiscal year follows:

IFC's Investment Commitments, 1965-66.

(Dollars)

	<u>Loan</u>	<u>Equity</u>	<u>Total</u>
<u>Brazil</u>			
Acos Villares, S.A.	4,000,000	1,051,068	5,051,068
Papel e Celulos Catarinense, S.A.	3,000,000	3,132,881	6,132,881
<u>Chile</u>			
Empresa Minera de Mantos Blancos	-	1,237,500	1,237,500
<u>Colombia</u>			
Almacenes Generales de Depósito Santa Fe, S.A. "Almaviva"	1,000,000	-	1,000,000
Industria Ganadera Colombiana, S.A.	1,000,000	623,053	1,623,053
<u>Costa Rica</u>			
Productos de Concreto, S.A.	183,000	137,023	320,023
<u>Ecuador</u>			
La Internacional, S.A.	1,720,000	280,584	2,000,584
<u>Ethiopia</u>			
Ethiopian Pulp & Paper, S.C.	-	1,900,000	1,900,000
<u>Greece</u>			
General Cement Company, S.A.	3,500,000	-	3,500,000
National Investment Bank for Industrial Development, S.A.	-	719,082	719,082
Titan Cement Company, S.A.	-	24,248	24,248
<u>Honduras</u>			
Empresa de Curtidos Centro Americanas, S.A. (supplemental)	-	27,500	27,500
<u>India</u>			
Precision Bearings (India), Limited (supplemental)	131,250	-	131,250
<u>Liberia</u>			
Liberian Bank for Industrial Development and Investment	-	250,000	250,000
<u>Malaysia</u>			
Tasek Cement, Limited	1,275,000	284,381	1,559,381

	<u>Loan</u>	<u>Equity</u>	<u>Total</u>
<u>Mexico</u>			
Compañía Fundidora de Hierro y Acero de Monterrey, S.A.	2,292,000	3,591,746	5,883,746
Industria del Hierro, S.A.	-	360,288	360,288
<u>Morocco</u>			
Compañía Industrial del Lukus, S.A.	890,000	495,219	1,385,219
<u>Tunisia</u>			
Société nationale d'investissement	-	571,428	571,428
<u>Turkey</u>			
Sentetik Iplik Fabrikalari, A.S.	900,000	468,889	1,368,889
<u>Venezuela</u>			
Dominguez y Cia. (Caracas), S.A.S	-	577,582	577,582
TOTAL	19,891,250	15,669,431	35,560,681

C. IDA Credits

During the fiscal year 1965/66 IDA extended two credits totalling \$125 million to assist the industrial sector in India and Pakistan.

IX.C.1

India:

Within the last decade there has been considerable development in India of manufacturing firms capable of producing sizable quantities of capital equipment such as industrial and electrical machinery, construction equipment and commercial vehicles. Increased capacity in these industries has been given high priority because of the rapid development of road transport, the need for more electric power throughout the country and the growing requirements for construction equipment for many kinds of development projects. Because of the shortage of foreign exchange, however, manufacturers have not been able to purchase all the imports they require to make full use of the plant capacity at present installed. IDA has extended two credits totalling \$190 million, one in June 1964 and the other in August 1965, to assist selected industries in importing goods essential for maintaining and expanding production of transport equipment and industrial machinery.

IX.C.2

Pakistan:

In January 1966, IDA extended a credit of \$25 million for a project to modernize and expand the commercial vehicle fleet in Pakistan. The credit is providing the foreign exchange required for the import of components for about 8,000 commercial vehicles to be assembled in Pakistan and for the import of about 150 double-decker buses. The project will alleviate Pakistan's shortage of commercial vehicles and complement assistance being given by IDA for road construction.

Chapter X

OTHER ACTIVITIES RELATED TO INDUSTRIAL DEVELOPMENT

A. Social Aspects of Industrialization

X.A.1

BSA project: Social Planning at Regional, National and Local levels to promote Rapid and Balanced Industrial Development and to Cope with Social Problems Arising in Rapidly Industrializing Areas

Authority:

Work programme adopted by the Social Commission for 1967/68 (E/4206, annex II, para. 17)

Description:

A study to provide, through research, a series of specific social policy and planning recommendations related to defined social objectives and to prevailing social conditions, for expediting development and avoiding the undesirable social consequences of unplanned industrialization. The study will also provide a basis for collaboration in this field between the United Nations and the specialized agencies.

Duration:

1965-1967

Estimated cost and source of funds:

Staff salaries; United Nations budget

B. Sociological Research: Entrepreneur and Labour
Motivation: Conditions of Work Conducive to
Productive Efforts etc.

C. Ergonomics

No reports have been received for projects under these headings.

D. Health and Safety Measures concerning Work and Working Conditions

ILO project:

In the present section information is given on activities the primary purpose of which is to provide a measure of protection or welfare or both for industrial workers. The ILO activities concerned are listed under the three headings of:

- (a) Working conditions;
 - (b) Social security;
 - (c) Occupational safety and health in manufacturing
- (a) Working conditions

X.D.1

The ILO is preparing an analysis of the observations made by Governments and employers' and workers' organizations, including those of industrializing countries, on the conclusions of the Meeting of Experts on Welfare Facilities in Industry held in October 1964 and mentioned in last year's Consolidated Report (E/C.5/125/Add.1, p. 123). The resulting document will provide an indication of the relative importance attached to various types of welfare facility by employers and workers in different regions and countries, and guidelines as to the type of welfare facilities most acceptable to workers.

X.D.2

The ILO is also planning, as part of its regular programme in 1966/67, the preparation of a manual in the Workers' Education Series of the ILO for the guidance of workers' representatives taking part in the operation of welfare services, and the publication of a ready-reference manual of standards relating to welfare adopted under the auspices of the ILO for the guidance of experts advising governments and industry under the UNDP. These projects were suggested by the Meeting of Experts on Welfare Facilities in Industry held in 1964.

X.D.3

The information regularly collected by the ILO in the

field of conditions of work is the basis for replies to requests for information from different sources, many of them from developing countries seeking information on practices in other countries with a view to improving conditions in industry in their own countries. As an example of such assistance given by the ILO, information was furnished in 1965 to a developing country whose economy is based on the petroleum industry, relating to all aspects of conditions of work in the petroleum industry in six major petroleum-producing countries and a comparison between the conditions of workers in the industry and in industry as a whole.

(b) Social security

X.D.4

The ILO has already completed some studies and is actually engaged in one study of the economics aspects and effects of social security both in countries in course of industrialization and in industrialized countries. One study entitled "The Role of Social Security and Improved Living and Working Standards in Social and Economic Development", submitted to the Eighth Conference of American States Members of the ILO (Ottawa, 1966), deals with the economic and social aspects of social security in the Americas. Another study "Income Redistribution Through Social Security in Western European Countries" was prepared in 1966 for the United Nations. Economic Commission for Europe as a contribution to a larger study on the income policies in European countries. Recently the ILO has embarked upon a long-term study on a world-wide basis on "The Role of Social Security in Social and Economic Development". This study will deal with problems and solutions in the field of social security in countries in the process industrialization as well as social security problems arising out of technological changes in highly developed countries.

X.D.5

Details of current ILO social security projects and missions in industrialising countries were given in the last Consolidated Report. This activity has continued, many of the projects mentioned being still in operation.

(c) Occupational safety and health in manufacturing

X.D.6

The occupational safety and health problems which faced countries in Europe and North America during their industrial development are now being met with in an increasing number of developing countries. The burden imposed on a developing country in trying to secure recognized standards of occupational safety and health for its workers is very much greater than that in a highly industrialized country. The chief reasons for this are:

An acute shortage of occupational health doctors and auxiliary medical personnel, and medical facilities;

An insufficient number of trained government factory inspectors to advise on and enforce protective legislation;

Lack of trained safety officers and medical supervision in industrial establishments;

Use of old second-hand or locally made machines with inadequate guards in the medium-sized and small industries which employ the majority of the workers;

Environmental conditions which tend to make the workers less alert and more prone to accidents;

Longer period of exposure to risk and strain of a new environment on workers coming straight to industry from agricultural life;

Sometimes, the illiteracy of workers, who are unable to read safety instructions or warnings;

Language difficulties, often met with (migration in general, migration of rural populations from tribal areas to the towns in an heterogeneous country);

Lack of industrial background and tradition;

Lack of laboratories (medical, environmental, materials testing);

Acute shortage of intermediate personnel - foremen, instructors etc.;

Lack of training facilities (including courses etc.) in safety, health and hygiene;

Lack of adequate and fully adapted to local conditions - legislation on safety and health;
Inadequate (or absence of) maintenance and plant inspection.

Unhealthy working conditions contribute to a lowering of the efficiency of production and thus directly slow down the industrial development of a country. There is likely to be an increase of occupational accidents and diseases as the developing countries become more and more industrialized unless adequate measures are taken to create occupational safety and health services.

X.D.7

The ILO has always concerned itself with problems of occupational safety and health, and it now gives special attention to problems of industrializing countries. The present programme covers the following subjects:

Preparation and revision of relevant international standards, including the international conventions and recommendations on protection against accidents (dockers); safety provisions in the building industry, medical examination of young persons in industry, in non-industrial occupations and underground; hygiene in commerce and offices, maximum weight to be carried by one worker; radiation protection; anthrax protection; guarding of machinery, and occupational health services in places of employment;

Preparation of model codes and codes of practice for occupational safety and health in industrial establishment, in mines, in agriculture and in forestry work;

Publication of manuals on occupational safety and health in dock work, building, civil engineering, agriculture, forestry etc.;

Operation of an international information centre (UIS) on occupational safety and health providing up-to-date information on every aspect of accident prevention and health protection;

Compilation of technical studies on a wide range of occupational safety and health problems and preparation of standard films for the international

classification of radiographs of pneumoconiosis;

Direct assistance to Governments by providing experts to advise on occupational safety and health problems, and fellowships to enable Governments to send doctors and engineers abroad for training in occupational health and safety, and by giving advice on the drafting of regulations concerning occupational safety and health;

Organization of training courses on specialized subjects such as radiation protection, dust prevention etc.;

Convening of international conferences and symposia on a wide range of occupational safety and health problems.

These activities are carried out in close contact with national safety organizations and research centres and in co-operation with WHO, IAEA, ILO, the International Social Security Association and other international organizations.

X.D.8

Denmark - Training Course in Protection against Radiations in Industry

This three-week course was held in Denmark in 1965. It was a regional course for the Near East, Middle East and Asia, organized as a joint venture with the International Atomic Energy Agency and the Danish Technical Co-operation Board for Developing Countries. The course was attended by thirty participants, including industrial health doctors, factory inspectors, safety officers and industrial hygienists.

During 1965 the following projects were carried out under the UNDP/Expanded Programme of Technical Assistance.

X.D.9

China - Occupational Safety in Coal Mines

At the request of the Government of China an expert in mine safety spent six months in making a survey of conditions in the coal mines in which about 70,000 miners are employed. The object of this survey was to make an evaluation of mine safety and

make recommendations to improve the conditions in mines. The expert visited and surveyed conditions at thirty-three coal mines, two gold mines, three sulphur mines and eight quarries. This mission was financed from EPTA funds.

X.D.10

Ghana - Occupational Health

In 1964 the Government of Ghana requested the ILO to provide an expert on occupational health. The expert spent the whole of 1965 in Ghana and his mission continues until September 1967. He made a survey of occupational health, conducted training courses in occupational health for government factory inspectors and advised on the labour legislation relating to occupational safety and health. He also assisted in the work of the Ghana Occupational Health Board, which was set up in 1963 with the technical assistance of the ILO, for the detection, assessment and compensation of pneumoconiosis in the mining industry. About 28,000 workers are employed in the mines of Ghana, amounting to 9 per cent of the industrial population, and about 10,000 of these miners are exposed to the risk of silicosis, about 1,000 to lead exposure risk and about 2,500 to risks from various toxic substances. In some mines it has been found that as many as 10 per cent of the workers have symptoms of silicosis. The importance of occupational health measures to control this serious industrial disease is a matter of first importance to the economic development of the country.

X.D.11

Guatemala - Occupational Safety

Following a request from the Government of Guatemala, an ILO expert in occupational safety was sent on a mission in 1964 which terminated in 1965. This expert made a survey of occupational safety in industry and agriculture, instituted training courses in safety and prepared for the Government drafts of safety and hygiene legislation. The Government requested the ILO to send this expert on a further mission in 1966 to continue the programme for improving occupational safety and health.

X.D.12

Asia Regional Project - Occupational Safety and Health

This ILO project started in late 1964, and continued through the whole of 1965. One occupational health doctor spent nine months, and one expert in occupational safety spent six months during 1965 in making surveys in their respective fields in Ceylon, Hong Kong, Pakistan, The Republic of Korea, Singapore and Thailand. The object of the surveys was to assess the need for improved measures in occupational safety and health, review the relevant labour legislation and advise the Governments as to what practicable steps should be taken to make the best use of their available resources in these fields. All the countries visited are in process of rapid industrialization and faced with many difficulties in implementing programmes of occupational safety and health. In some of these countries the national insurance schemes for compensation for industrial injuries and diseases are having to pay out a much larger sum per annum than was first contemplated because the accident rates are much higher than anticipated by the actuaries who devised the insurance schemes; the actuarial figures were based on accident records from a developed industrialized country where accident rates are much lower than those of a developing country. The Governments concerned are consequently very much interested in reducing the accident rates.

X.D.13

India - Industrial Hygiene and Physiology

In 1961 a Special Fund project for the setting up of three regional labour institutes at Kanpur, Calcutta and Madras was initiated by the ILO on the request of the Government of India. Each of the labour institutes has an industrial hygiene laboratory and workshops, and provides facilities for education, training and research on the human factors involved in industrial development. These institutes are making a valuable contribution to the solution of occupational safety and health problems in India. To assist in the further development of their work the ILO has provided an expert in the field of industrial hygiene who spent six months in 1965 and will remain in post for the whole of 1966.

X.D.14

India - Mine Safety

A fellowship in mine safety was granted in 1965 to one

of the inspectors of mines in India in order to study advanced safety techniques in mines in Poland, Czechoslovakia and the Soviet Union, a period of one month being spent in each of these countries.

X.D.15

Pakistan - Occupational Safety and Health

At the invitation of the Government an expert was sent to Pakistan for one month under the ILO regular programme, to advise on the form of a request for technical assistance to the UNDP for the setting up of a labour institute.

X.D.16

Thailand - Occupational Safety

At the request of the Government of Thailand an expert in occupational safety was sent on a two-year mission which terminated in July 1965. This expert made a survey of safety in industry and trained a number of factory inspectors in the Ministry of Labour; he also organised the work of the factory inspectorate and drafted safety regulations.

WHO projects:

X.D.17

Since 1965 WHO has been sponsoring an international study of normal values for toxic substances in the human body; Columbia University has been designated a WHO reference laboratory for the study of this subject.

X.D.18

In co-operation with WHO, the Institute of Industrial Hygiene and Occupational Diseases, Prague, is carrying out a study on problems of mental fatigue in railway dispatchers.

X.D.19

A WHO consultant has carried out an analysis of replies received from Member Governments to the EC8 enquiry on medical examination requirements for applicants for motor vehicle driving permits.

X.D.20

WHO has provided a grant to the Institute of Occupational Health, Helsinki, to carry out a study on the effects of vibration on health, and to the London School of Hygiene and Tropical Medicine for a study on textile dust and hazards to textile workers.

- X.D.21** During 1967 a study is proposed on work physiology and ergonomics in developing countries and the adjustments of work to man, with a view to the provision of demonstration centres and training courses.
- X.D.22** A review is proposed of current problems in aviation medicine.
- X.D.23** An outline is being prepared for a manual on health in agriculture.
- X.D.24** It is proposed to study the Organization's programme in human physiology and ecology, with particular reference to collaboration with the International Biological Programme.
- X.D.25** Following a resolution of the Nineteenth World Health Assembly, an enquiry is being made of Member Governments as to the present health services available to seamen in their countries and the possibility of setting up two pilot health centres for seamen.
- X.D.26** In August/September 1966 the Fifth Joint ILO/WHO Committee on Occupational Health was held. This committee discussed the organization of occupational health services in developing countries and proposed guiding principles for the consideration of those countries when they are establishing such services. Its report will be published in the WHO Technical Report Series.
- X.D.27** An Advanced Course for Industrial Medical Officers was held in Zurich during October 1966. The participants recognized that ergonomics should play a much greater part in industrial medicine and that industrial medical officers must know the principles of ergonomics with a view to improving the security and well-being of the worker.
- X.D.28** The Second WHO Regional Seminar on Occupational Health is to be held in Manila during October 1967. This meeting will discuss the development of occupational health services in that area, with special reference to small factories and agriculture.

- X.D.29 Tentative plans have been made by WHO to convene, during 1967, a Scientific Group on Health Factors in Working under Conditions of Physical Stress. This group will discuss the response of the human organism to work under arduous physical conditions, both adaptive reactions and possible damage to health.
- X.D.30 A paper is being prepared by WHO for presentation at the 1967 International Symposium on Industrialization. The theme of the paper will be "Health Aspects of Industrialization".
- X.D.31 Tentative proposals have been made for an Expert Committee on Criteria for Threshold Limit Values of Exposure to Toxic Substances to be held during 1967. This Committee will discuss criteria for, and recommend an international list of, such values.
- X.D.32 A Regional Symposium on Human Factors in Road Accidents will be held in Rome in October 1967.
- X.D.33 During a four-month period in 1965 a WHO consultant advised the Government of China on occupational health services and made recommendations for future development.
- X.D.34 In May/June 1966 a WHO consultant carried out a survey to determine the advisability of an occupational health service in Mauritius.
- X.D.35 In November 1966 a WHO industrial hygienist assisted the Government of Kuwait in training public health staff in methods of assessing environmental conditions in factories and other places of work.
- X.D.36 During the early summer of 1966 two WHO consultants advised the Government of Iran on a programme of occupational health for the new School of Public Health in Iran.
- X.D.37 During 1967 WHO will provide consultant services to the Greek Government to help in promoting the country's occupational health services.

WHO/UNDP Project:

X.D.38

The Government of Bulgaria has requested UNDP (SF) assistance in the establishment of a Central Institute of Public Health in Sofia. This request is under review in UNDP and the Government of Bulgaria hopes that the project may be submitted to the March 1967 Inter Agency Consultative Board for subsequent approval at the June Governing Council.

W. Health Measures in Planning Industrial Communities

X.E.1

ILO project:

Late in 1966, the ILO prepared a paper on the role of the World Food Programme (WFP) in improving productivity in industry and agriculture. While this paper takes account of WFP action and its potentialities in this respect in all developing regions, special attention is given to Latin America. This paper has been considered at the Latin American Seminar convened in Bogota by the United Nations in December 1966 for the benefit of national and international staff responsible for planning and implementing WFP projects. ILO technical assistance under the World Food Programme related to industrial development.

X.E.2

In May/June 1965, an ILO expert undertook a mission to Turkey to advise the Government and the WFP on the organization of five WFP projects using food aid to help in the development and expansion of the coal mines at Zonguldak, the iron and steel works at Karabuk, the pulp and paper plant at Izmit, the nitrogen production plant at Kutahya, and the cement plants of the state cement industry in different parts of the country. The projects were carried out immediately following the mission along the lines recommended. In each case, the WFP food is used in the plant canteens to improve the nutrition of the workers, and the savings on canteen purchases already provided for in the budgets of the undertakings are diverted to other improvements, also designed to increase workers' productivity and to help in attracting additional workers required, such as the building of vocational training centres and the improvement of accommodations, sanitary arrangements and recreational facilities for workers who are housed by the employer.

X.E.3

In July 1965, an ILO expert participated in an inter agency mission to Syria to assist the Government in formulating requests to the WFP for its support for a number of development projects included in the development plan of Syria then being formulated. These projects include the restoration of

the Hedjaz railway, the construction of public amenities in selected (including urban and industrial) areas, the construction, improvement and maintenance of roads, the establishment of rural handicrafts training centres, the installation of generators and construction of high-tension transmission lines, and the improvement of the Aleppo/Akkari railway. These projects are being progressively scrutinized, approved and implemented by the WFP.

X.2.4

In the latter part of 1965 and early in 1966, the ILO Special Fund team of experts developing the vocational training facilities of Colombia helped the Government to prepare a request for substantial aid from the WFP and its execution will be carried out with the assistance of the ILO. An important aim of the project is to improve the supply of skills required in Colombia's industry.

X.2.5

In June 1966, an ILO expert visited Tunisia to co-operate with ILO vocational training experts in the country in assisting the Government and the WFP to launch projects for food aid to vocational and pre vocational training centres, also designed, as in the case of Colombia, to provide more skilled workers for developing industry.

X.2.6

WHO Project:

In 1967 a WHO Expert Committee will review experience and advise on measures to deal with water pollution, with particular reference to arid and semi-arid zones and to those developing countries where wide seasonal variations in precipitation create special pollution problems. The Committee will also consider the possibilities of, and problems created by, water re-use, bearing in mind the needs of agriculture and industry.

X.2.7

The WHO Inter Regional Seminar on Water Pollution Control, also planned for 1967, will facilitate an exchange of up-to-date technical information and experience on methods for evaluating and controlling pollution in rivers, lakes, canals and coastal waters.

X.E.8

Various consultants will examine the environmental pollution problems created by, or associated with, power stations, to help developing countries to fight gross pollution from such establishments, also the public health hazards associated with radioactive wastes in view of the great increase to be expected in the use of radioisotopes not only in medicine and research but in industry.

F. Urban Planning and Development

X.F.1

BSA Project: Technical Assistance to India in connexion with the physical planning of a new capital city for the State of Gujarat

Authority:

Economic and Social Council resolution 222 (IX)

Description:

Comprehensive urban planning for the preparation of a physical plan for a new capital city which will furnish not only government facilities and quarters but also a balanced economic base through the provision of industrial areas.

This project is a component part of the over-all master plan for the development of the capital city, Gandhinagar.

It will provide employment for an ultimate total of 9,000 industrial workers, on an area of 400 acres which has been proposed for industrial sites.

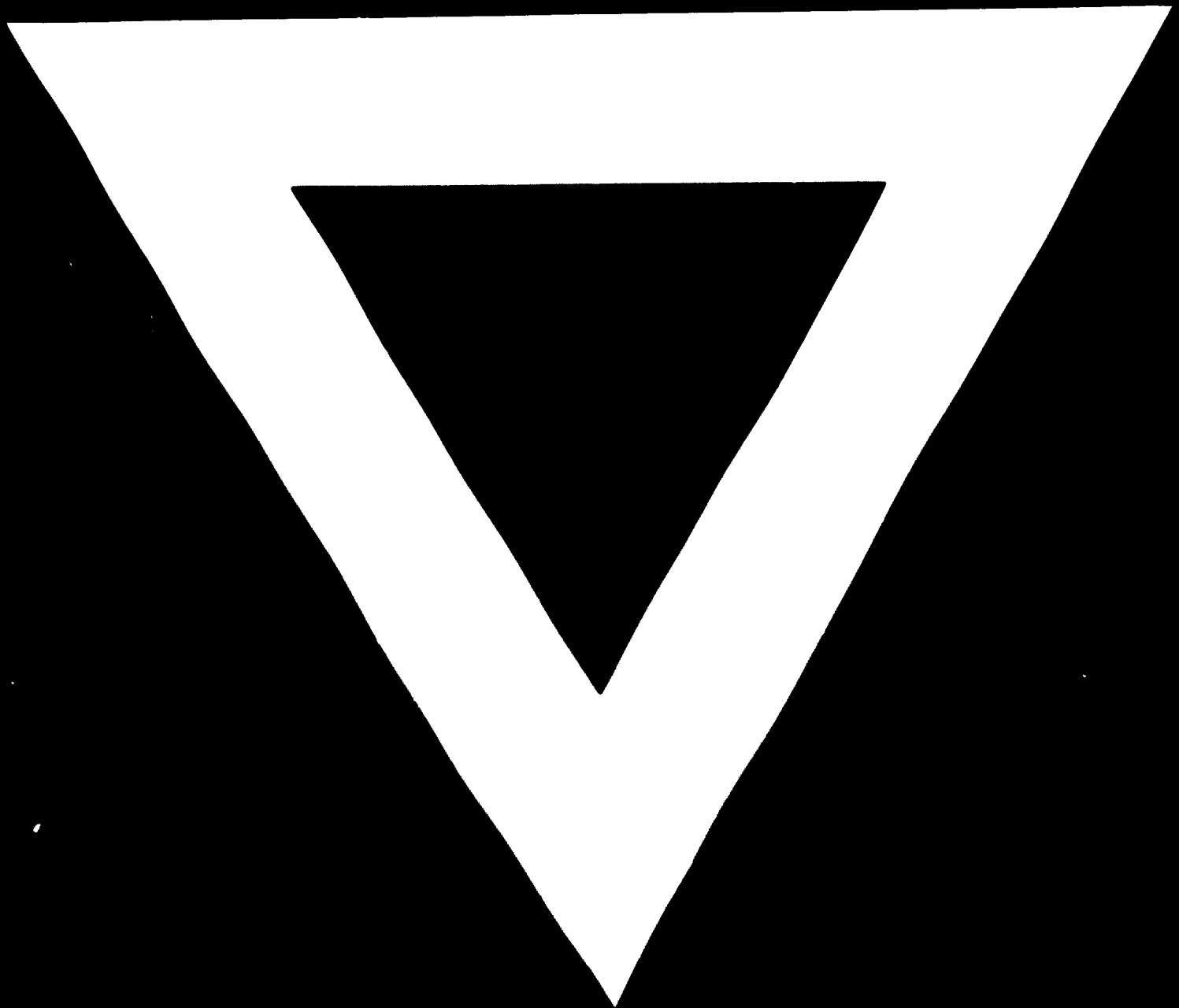
Duration:

Initiated in July 1966; continuing into 1967.

Estimated cost and source of funds:

\$5,000 UNDP (TA)





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