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ACTIVITIES OF THE JOINT ECLA/INSTITUTE/IDB PROGRAMME ON
THE INTEGRATION OF INDUSTRIAL DEVELOPMENT

(September 1965 ~ September 1966)

Report of the Director of the Programme

TABLE OF CONTENTS

	<u>Page</u>
I. THE JOINT PROGRAMME: BACKGROUND INFORMATION, ACTIVITIES AND RESOURCES	1
1. Background data	1
2. Activities of the Programme	2
3. Resources for the Programme	8
II. IRON AND STEEL INDUSTRY	10
A. <u>Work completed</u>	10
1. La economía siderúrgica de América Latina: informe regional (E/CN.12/727).....	10
2. La exportación como perspectiva del desarrollo siderúrgico latinoamericano (ST/ECLA/Conf.23/L.49)	11
3. Technological research in relation to the iron and steel industry	11
4. Iron and steel studies to be carried out in collaboration with the United Nations Secretariat	12
5. Advisory assistance in the field of steel-making	12
B. <u>Current and future activities</u>	13
1. Economies of scale in the iron and steel industry	13
2. Study on sources of supply of pig iron in Latin America	14
3. Technological research in the iron and steel industry.	15
4. Advisory assistance in the field of steel-making	15
5. Future activities	16
III. NON-FERROUS METAL INDUSTRIES	17
A. <u>Work completed</u>	17
1. Perspectivas del desarrollo de la industria del aluminio primario y posibilidades de integración regional (ST/ECLA/Conf.23/L.26)	17

/B. Current

	<u>Page</u>
B. <u>Current and future activities</u>	17
1. Development prospects and regional integration possibilities of the copper industry	17
2. Development prospects and regional integration possibilities for the tin, zinc and lead industries ..	18
IV. THE CHEMICAL INDUSTRY	19
A. <u>Work completed</u>	19
1. La industria química latinoamericana en 1962-64 (E/CN.12/756)	19
2. Fertilizer supplies in Latin America	19
3. ICAP Working Group on Fertilizers (Second meeting) ...	21
4. La industria petroquímica en América Latina (E/CN.12/714)	22
5. The transfer of know-how in the chemical industry	23
B. <u>Current and future activities</u>	23
1. Regional report on the sodium alkalis industry	23
2. ICAP Working Group on Fertilizers (Third meeting)	24
3. Evolution of the chemical industry in Latin America, 1959-65	24
V. PULP AND PAPER INDUSTRY	26
A. <u>Work completed</u>	26
1. Pulp and paper in Latin America	26
2. Problems of size and modernization	26
3. Exports of pulp and paper products	27
4. Other work	27
5. Review consultation on pulp and paper development in Latin America	27
6. Advisory services	28
B. <u>Current and future activities</u>	29
1. Advisory services	29
2. Evolution of the industry	29
3. Future work	29

	<u>Page</u>
VI. METAL-TRANSFORMING INDUSTRIES	30
A. <u>Work completed</u>	30
1. Las máquinas-herramientas en la Argentina (E/CN.12/747)	30
2. The metal-transforming industry in Colombia	30
B. <u>Current and future activities</u>	31
1. The metal-transforming industry in Ecuador	31
2. The basic equipment industry in Latin America: regional report	32
3. The machine-tools industry in Latin America: regional report	32
4. Study on the motor-vehicle industry in Latin America.	32
5. Seminar on the manufacture of machinery	33
6. Advisory services	34
VII. THE TEXTILE INDUSTRY	35
A. <u>Work completed</u>	35
1. The textile industry in Latin America	35
2. Economies of scale in textile manufacturing	36
3. Choice of different technologies in the Latin American textile industry	36
4. Exports to the world market	37
5. Advisory and other activities	37
B. <u>Current and future activities</u>	38
1. The Latin American textile industry: regional report.	38
2. Advisory services	39
3. Future work	39
VIII. GENERAL ACTIVITIES IN RELATION TO THE INDUSTRIAL ECONOMY.	41
A. <u>Work completed</u>	41
1. The process of industrial development in Latin America (ST/ECLA/Conf.23/L.2)	41

	<u>Page</u>
2. Crédito para financiamiento de la industria de bienes de capital en algunos países de América Latina (ST/ECLA/Conf.23/L.41)	41
3. National reports on industrial development	41
4. Small-scale industry in Latin America	42
5. The Latin American Symposium on Industrial Development	42
6. Industrial development in Latin America in 1965	43
7. Problems relating to the transfer of technical know-how and applied technological research	43
8. Assistance in the teaching of industrial programming in the Institute's Basic Training Course	45
9. Proposed tripartite industrial productivity programme	45
<u>B. Current and future activities</u>	46
1. Seminar on Small-scale industry in Latin America (Quito, 28 November - 5 December 1966)	46
2. National reports on small-scale industry	47
3. Promotion of exports of manufactures	47
4. International Symposium on Industrial Development ...	48
5. Economic Survey of Latin America, 1966	49
6. Other studies	49
<u>ANNEX I</u>	51
<u>ANNEX II</u>	52

I. THE JOINT PROGRAMME: BACKGROUND INFORMATION,
ACTIVITIES AND RESOURCES1. Background data

The present document is intended as a progress report on the work of the Joint Programme from September 1965 to September 1966, a period which approximately coincides with its second year in operation.^{1/} In order to facilitate understanding of the tasks involved in the Programme, which in many instances are of a continuing character, the same presentation has been adopted in this as in the preceding report^{2/} for the description of the various activities under way.

These activities are listed in detail, so as to give a complete picture of what has been achieved so far and of the results to be expected in the next twelve months, in accordance with the current programme of work. It was decided, however, to shelve the discussion of certain substantive questions relating both to the instruments for the promotion of industrial integration and to the conclusions reached in the studies themselves, since they have no bearing on the object of the Second Meeting on the Co-ordination of Integration Studies, for which the present report is intended. As in the previous report, references to each individual study are confined to a brief account of its contents, methodological orientation and stage of completion. In view of the concern for continuity which has been the ruling principle in the preparation of this report, the suggestion is put forward that it should be considered together with the preceding one, since an attempt has been made to avoid repeating explanations already given in connexion with projects embarked upon in the first year of the Programme.

1/ The Joint Programme was launched by ECLA and the Institute in June 1964, and was joined by IDB at the end of August in the same year.

2/ Actividades del Programa Conjunto CEPAL/INSTITUTO/BID de Integración del Desarrollo Industrial (junio 1964-agosto 1965): Informe del Director del Programa (E/CN.12/L.8).

For the same reason, nothing further has been said of the nature and aims of the Joint Programme. Its organization is unchanged, and so is its basic objectives - the collection of data relating to industrial integration in order to facilitate the work of the agencies responsible for that process; although this does not preclude the possibility that alterations in the circumstances attendant upon the Latin American economic integration movement may be reflected in the Programme's activities and may subsequently call for modifications of its work schedule and even of its modus operandi. A case in point might be the recent proposal of the Inter-American Development Bank (IDB) to establish a Pre-Investment Fund for Integration. If such an instrument is to be efficaciously applied in the field of industry, factual information on the industrial sector in Latin America will be required, including a stock of data on its technical and economic characteristics and on its operational conditions; and all this is exactly what the Joint Programme aims at procuring. It is to be hoped, therefore, that co-ordination and co-operation patterns can be established which will enable the Programme to give full support to the activities of the Pre-Investment Funds.

2. Activities of the Programme

Those aspects of the work of the Programme that are most directly linked to integration relate to the main branches of industry - steel-making, and the non-ferrous metal, chemical, pulp and paper, metal-transforming and textile industries -, and the relative progress of the studies, as was explained in fuller detail in the previous report, is conditioned by a large number of factors. The degree of technical complexity and the general situation of the industry installed vary widely from one sector to another, so that work on the corresponding studies has to proceed at different rates. Moreover, some branches of industrial activity present peculiar features which make it difficult to adopt an order of priorities defined in accordance with any economic criterion, and call for special methods of work. The most outstanding case in point is that of the metal-transforming industry, which in macro-economic studies on regional economic development is often singled out as one of the great potential

/in relation

in relation to development on a regional scale, but which consists of a conglomeration of industries whose production techniques, equipment, plant characteristics and/or skilled manpower requirements differ substantially. Consequently, any integrationist approach based on reference to the "metal-transforming industry", or even to its major subdivisions (defined in accordance with an abstract criterion as "lines of manufacture of capital goods") is of no practical value, or, in other words, is not meaningful enough to serve as a basis for the formulation of a specific regional integration promotion programme. In this connexion, the experience acquired in the course of the Programme's work clearly indicates that attention should be focused on homogenous activities, defined from a pragmatic standpoint, their homogeneity being determined by the manufacturing techniques applied, the production lay-out and the technological characteristics of the establishments concerned, and not necessarily by the economic use or destination of their products. The manufacture of a great deal of equipment for the generation of electric power, for example, entails very much the same technique, procedures and equipment as are required to produce, for instance, steel-making or cement-manufacturing equipment. Such machinery (together with equipment for other heavy industries) is usually manufactured in large machine shops that work indiscriminately on a wide variety of heavy equipment, in conformity with designs and specifications which differ for each order or project. Metal-working machinery, on the other hand, although it likewise represents capital goods, and a considerable proportion of it may be intended for the very plants in which the above-mentioned heavy equipment is to be installed, is manufactured in different establishments, usually specialized and of medium size, and producing a narrow range of machine types and models whose technical characteristics and specifications alter only from time to time. Accordingly, there is no "capital goods industry" sufficiently homogenous, in respect of procedures, methods of work, etc., to warrant the notion of a clearly-defined and articulated "programme" to promote it on the regional scale.

/Such considerations

Such considerations as these have so far led the Programme to concentrate attention, in its studies of the metal-transforming industry, on three major groups of products: equipment for basic industries (steel-making, generation of electric power, the cement and pulp and paper industries, etc.), produced in what are termed heavy metal-transforming units; machine-tools (or machinery for metal-working); and machinery and equipment for the textile industry. In so far as the progress of work on these branches of industry and the available supply of additional human resources permit, other "homogenous" activities will gradually be identified, relating to road, rail and maritime transport equipment, agricultural machinery, etc.

This sub-sectoral approach, however, is intrinsically inadequate, as it means that countries at a relatively less advanced stage of development, and those whose markets are unduly narrow, are virtually excluded from the integration movement. Owing to the greater complexity of their manufacturing processes, the heavier incidence of economies of scale and, above all, the stronger influence exerted by location in a developed industrial environment where intensive use can be made of subcontracting practices and of third-party services, the major lines of production represented by capital goods and transport equipment, can find conditions favourable to their immediate development only in the larger countries of the region. In the remainder, possibilities for the manufacture of such products under regional specialization plans cannot materialize through the mere application of trade liberalization measures to establish a system of free competition with respect to trade in the goods concerned, but will have to be actively and deliberately promoted through the establishment of a set of metal-transforming activities that will constitute an adequate technological infrastructure for the future development of more complex branches of manufacturing industry. In the metal-transforming field, and probably in all the Latin American countries except the three with the highest level of industrial development and the broadest domestic markets (Argentina, Brazil and Mexico), regional integration will have to be accompanied, if not preceded, by an energetic effort in respect of promotion and improvement on the national scale. Metal-transforming

/activities as

activities as a whole will have to be properly programmed, with a view to their modernization, technological improvement and development, which is a sine qua non if they are to play any sort of part in a more far-reaching regional integration movement. This is why the Joint Programme, besides analysing subdivisions of the metal-transforming industry, is studying it in its entirety in individual countries. These country studies should provide material for the formulation of programmes designed to improve methods of work and to introduce new techniques and new equipment, especially in aspects of the industry that are of decisive importance for raising its technological level and increasing its capacity to perform new and more responsible tasks, as it must if it is to undertake more complex lines of production for export to the regional market.

To separate the analysis of regional integration opportunities from consideration of the existing industrial situation and the prospects of improving it through satisfactory programming at the national level is always a difficult matter; and the foregoing comments imply that in the case of the metal-transforming industries it is almost impossible, particularly when the aim in view is to channel the regional integration movement in such a way as to equalize the benefits obtained by all the participating countries. This assertion, already made in the report on the Programme's first year of activities,^{3/} has been ratified by experience in the course of carrying out the studies on the metal-transforming industry which have been undertaken since then.

The studies completed in the period under review cover all the branches of industry to which attention is being devoted. The regional report on the steel-making industry was completed, the earlier provisional text having been thoroughly revised. This study, with its detailed analysis of the costs problem in the Latin American iron and steel industry and of the factors which affect it and which place some of the various producers at a disadvantage in relation to others, supplements the copious information assembled in the report of the Study Group set up by ALALC's

3/ Ibid., pp. 2 and 3.

Advisory Committee on Industrial Development (CADI). The costs analysis in question, which takes into account technical structures, scales of production, and levels of technology, as well as expenditure on the formation of stocks of raw materials and other direct inputs, may perhaps constitute a particularly useful ancillary instrument for deciding upon the technical and financial assistance measures and programmes that may be needed to complement trade liberalization programmes.

The provisional report on the aluminium industry offers some preliminary evidence of the costs and investment advantages that would stem from regionally-integrated development, and therefore clears the ground for the determination of what additional and more thorough studies should be carried out. This may possibly constitute a particularly favourable field for the work of the IDB Pre-Investment Fund, pursuant to the decisions adopted by the integration agencies.

With respect to the chemical industries, considerable headway was made during the past year. In addition to a survey of the Latin American petrochemicals industry and an over-all analysis of the evolution of the chemical industries in 1962-64, based on data which in many instances are not obtainable from other sources, a report on the fertilizer industry in Latin America was completed, and served as a basis for discussion on the subject of supply at the second meeting of the Working Group on Fertilizers established by the Inter-American Committee on the Alliance for Progress (ICAP). The salient characteristic of this report is that it shows, through a detailed country-by-country analysis of the factories in operation and the projects in course of construction and under study, that the probable supply of nitrogenous fertilizers is likely to exceed demand both in 1970 and in 1975, according to estimates based on the most optimistic hypotheses.^{4/} Hence the ICAP Group has radically altered the approach adopted in its studies, since the earlier expectations of a substantial supply deficit, which could be covered, it was thought, with

^{4/} Estimates of demand prepared by the ECLA/FAO Joint Agriculture Division.

the output of regional plants of economic size, have given place to an outlook in which the dominant features are a considerable surplus on the supply side, and national plants whose dimensions are in many cases unduly small, and whose technical structure is in some instances ill-adapted to future regional competition prospects. Although the essence of the fertilizer problem in Latin America - how to secure, in a reasonable space of time, a local supply at prices approaching world market quotations - remains unchanged, the action called for must necessarily reflect the new circumstances. It may be worth mentioning, in connexion with this report, that since its distribution in May of the current year, a few countries have shown a tendency to remodel some of the projects whose characteristics were least promising. This is one of the most positive ways in which the Programme studies can help to guide Latin America's industrial development along more rational lines.

A consultative meeting on the development of the pulp and paper industry - the field of activity of an ECLA/FAO/BTAO Advisory Group - was held at Santiago in March of the present year, concurrently with the Latin American Symposium on Industrial Development, and on this occasion several documents were prepared which bring factual information on the sector up to date and analyse questions not previously considered, such as, for example, the operational conditions of small and medium-sized plants and the bases in which their expansion and modernization could be justifiably contemplated.

As regards the metal-transforming industries, the Programme studies have followed the two lines of approach indicated above - by subsectors and by countries. From the former standpoint, a detailed analysis of the machine-tools industry in Argentina was completed, as part of the relevant regional report. In the case of the over-all country studies one on the metal-transforming industry in Colombia was brought to a conclusion.

Reports on the textile industry in Venezuela and Mexico were completed, and so were studies on the incidence of economies of scale in cotton spinning and weaving, and on the selection of alternative production techniques and equipment for the textile industry. These analyses may be useful as instruments for programming in this sector.

/Lastly, mention

Lastly, mention must be made, in this rapid review of the Joint Programme's activities during the past year, of the preparation and organization of the Latin American Symposium on Industrial Development (Santiago, Chile, March 1966), in collaboration with the United Nations Centre for Industrial Development; and of the preparatory work for the Seminar on Small-Scale Industry in Latin America, to be held in Quito towards the end of the current year.

All these activities are described in greater detail in the following sections of the present report, and a full account is also given of the studies under way, or due to be started in the coming months, in relation to particular sectors of industry or to general industrial development problems.

3. Resources for the Programme

The resources at the disposal of the Joint Programme during its second year in operation exceeded those applied in its first year by 50 per cent, thanks to funds contributed by the United Nations Centre for Industrial Development for engaging the services of consultants, with a view to the preparation of the Latin American Symposium on Industrial Development. By virtue of this special contribution, it was possible to expand the activities of the Programme considerably during the second half of 1965 and to prepare a large number of studies in a relatively short time. This favourable circumstance is unlikely to recur in the near future, and a slowing-down of the previous tempo of the Programme's work will therefore have to be accepted as permanent.

The staff of ECLA's Industrial Development Division was slightly increased; but there was no change in the number of regional experts assigned to ECLA by the Bureau of Technical Assistance Operations to work in the substantive units of the Programme corresponding to their specialities. In the ECIA/FAO/BTAO Pulp and Paper Advisory Group for Latin America, however, the number of FAO experts was cut down to one at the beginning of the current year.

/Estimates of

Estimates of resources for the coming twelvemonth (1966-1967) show a substantial reduction in relation to the second year of the Programme and only a small increase over the first, as can be seen from the table presented below, in which the funds for engaging consultants contributed by the United Nations Centre for Industrial Development and IDB are converted into terms of man/hours.

It should be noted that the table takes only professional staff members (economists and technical experts) into account. In addition to these, ECLA provides all the services involving administrative and auxiliary personnel that are needed for the operation of the Programme.

	1964-65	1965-66	1966-67
	(twelve-month periods, reckoned approximately from August-September)		
ECLA (Industrial Development Division)	8	10	10
United Nations Bureau of Technical Assistance Operations (Regional experts assigned to ECLA)	4	4	4
United Nations Centre for Industrial Development (Preparation of Latin American Symposium on Industrial Development) <u>a/</u>	-	8	-
Latin American Institute for Economic and Social Planning	1	1	1
FAO (ECLA/FAO/BTAO) Pulp and Paper Advisory Group for Latin America	2	2 <u>b/</u>	1
Inter-American Development Bank <u>a/</u>	4	4	6 <u>c/</u>
<u>Total</u>	<u>19</u>	<u>29</u>	<u>22</u>

a/ Equivalent in terms of man/hours of funds contributed for engaging services of consultants.

b/ Reduced to 1 in the last 5 months of this period.

c/ The third contract with IDB is not yet in force, but is expected to be approved shortly.

II. IRON AND STEEL INDUSTRY

A. WORK COMPLETED

1. La economía siderúrgica de América Latina: informe regional (E/CN.12/727)

In the foregoing notes on the activities of the Programme, the completion of a provisional version of this study is mentioned, and an account of its content is given. When leading enterprises and experts in the sector were consulted with respect to the text in question, however, their comments suggested the desirability of revising certain sections and introducing substantial changes in the presentation of the report. This was done, and in February 1966 a mimeographed issue of the document (in Spanish only) was distributed.

The changes introduced relate to three main aspects of the study. In the first place, the subject of the technological level of the industry is discussed much more fully, and analyses are included not only of the various levels of technology that are to be found in the existing industry and the corresponding scales of costs (in plants with the same dimensions and range of output), but also the innovations in respect of equipment and production techniques that could and should be adopted by the Latin American iron and steel industry, and the savings in costs and investment to which they would give rise. The second change consists in the incorporation of a detailed plant-by-plant analysis of existing operational conditions, especially as regards the reduction of ores, and the improvements that might be introduced, with, in some instances, an indication of the corresponding economies. Furthermore, the expansion plans that almost all the integrated plants in the region are studying or putting into effect are described in detail, and the effects they will have on production capacity are considered. Lastly, the integration question is dealt with on broader lines, the idea of estimating, on the basis of a provisional model, the possible movement of steel products in an integrated Latin American market having been dismissed. The approach adopted consists basically in analysing the comparative advantages of the leading Latin American manufacturers of steel products and discussing certain general principles by which any integration programme should be governed.

The study will appear in print early next year.

2. La exportación como perspectiva del desarrollo siderúrgico latinoamericano (ST/ECLA/Conf.23/L.49)

In this study, prepared by Mr. Armando Martijena, consultant to the programme, the major Latin American steel manufacturers' export prospects are analysed on the basis of specific hypotheses as to future plant expansion, the corresponding reduction of costs and the formation of new production capacity. The consultant presents costs estimates for each country and for each of the main steel-making enterprises, in conformity with the hypothesis adopted, and on these estimates bases his conclusions with respect to the trade flow that could be established in the region, arriving at an over-all projection of the region's exports and the world markets to which they could be shipped by 1968 and 1972.

3. Technological research in relation to the iron and steel industry

The adaptation of conventional steel-making procedures and equipment to the special raw-material or market conditions prevailing in Latin America calls for a deliberate and sustained technological research effort.

In order to furnish the programme with up-to-date and detailed information on which research needs to be carried out today, Professor Luis Correa da Silva was requested to undertake the relevant study on steel-making in Latin America, together with an on-the-spot survey of the stock of experience acquired and the resources applied in this field. The outcome of his mission was an inventory of problems and institutions, together with a body of suggestions for co-ordinated action at the regional level.^{5/} The purpose of the report, which was submitted to the Latin American Symposium on Industrial Development, and subsequently to the Congress on the Iron and Steel Industry convened by the Latin American Iron and Steel Institute (ILAFA) at Bogotá, in September 1966, was to pave the way for effective United Nations backing (through the Special Fund)

5/ Problemas que requerem pesquisas tecnológicas na indústria siderúrgica latinoamericana e reflexões sobre a ação necessária (ST/ECLA/Conf.23/L.49)

of research on the steel-making industry at the regional level. The specific project concerned, which is still in course of preparation, is described later, under the head of current activities.

4. Iron and steel studies to be carried out in collaboration with the United Nations Secretariat

Of the studies to be carried out in co-operation with the United Nations Centre for Industrial Development that were mentioned in the previous progress report - on world market conditions and trends for iron ore in the one case and steel in the other - only the former has taken concrete shape. With the co-operation of Mr. Pablo Bifani, consultant to the Programme, and in collaboration with ILAFA, a report was prepared containing the Latin American section of this world study.^{6/} It comprises a country-by-country analysis of iron ore resources and methods of organizing their development. The United Nations Economic Commission for Europe is responsible for preparing the consolidated world report. The other studies for which the co-operation of United Nations Headquarters is available, and to which allusion was made in the report on the activities of the programme, have not yet materialized.

5. Advisory assistance in the field of steel-making

Technical personnel attached to the Programme took part in the proceedings of the Study Group on the Iron and Steel Industry set up by ALAIC's Advisory Committee on Industrial Development (CADI), and are following up, in contact with Central American agencies, the steel-making project or projects under consideration in relation to the Central American Common Market. This last item, however, is still pending, and will therefore be discussed in the context of current activities.

6/ El mercado latinoamericano de minería de fierro, ILAFA publication (July 1966).

B. CURRENT AND FUTURE ACTIVITIES

1. Economies of scale in the iron and steel industry

The completion of this study, envisaged in the preceding report for early in 1966, has been delayed by what will probably amount to a twelvemonth, owing to the decision to remodel the original outline and include smaller plants than was at first intended, in order to provide useful background information for Latin American countries with narrower markets that might be interested in analysing the viability of a steel-making project within the next few years. Central America would of course be a case in point. The study consists of two virtually independent parts, besides a general introduction embodying a general approach to the subject and a comparative analysis of the methods applied and the results obtained. The first part, which was prepared by an Indian iron and steel engineering firm, M. Dastur & Co., acting as a consultant to the programme, considers small integrated mills with annual capacities of 25,000, 50,000, 100,000, 200,000 and 300,000 tons. In relation to each capacity, the selection of the most appropriate equipment, both for reduction and steel-making and for the manufacture of rolled products, is discussed in detail, on the premise that the same range of final goods (non-flats) is to be produced. An indication is given of the physical inputs and investment required in each case, and production costs are calculated on the basis of unit input costs representative of the average situation in Latin America. The presentation of physical data enables average estimates to be adapted to the individual circumstances of any country wishing to analyse the feasibility of a specific steel-making project. The amount of technical details accompanying the data on unit inputs in this first part of the report suggests that it will be extremely useful for feasibility studies of similar projects.

The second part of the report was prepared by another consultant to the Programme, Mr. Armando Martijena, and relates to integrated mills with annual capacities ranging from 100,000 to 2,500,000 tons. It presents the same type of technical data and estimates as the first part, although in less detail. The overlapping of some scales of production in the two parts

of the study is intentional, the aim being to facilitate comparison of the relevant estimates and of the criteria adopted in each case.

Both parts of the study have been completed, and all that remains to be done before the whole report can be published is the drafting of the introduction and comparative analysis, which should be finished by the end of the year.

2. Study on sources of supply of pig iron in Latin America

Except in Brazil, where pig iron is manufactured, specially for foundries producing parts used by the metal-transforming industries in general, there is no regular production of pig iron in Latin America to satisfy the demands of a modern machine industry. Much of the pig iron used in the Latin American foundries is produced by the steel-making industry. But in integrated mills pig iron production has to conform to specifications which facilitate its conversion into steel, and do not meet foundry requirements. In some cases, pig iron from integrated mills can be adapted to suit it for foundry purposes, but this entails additional processing which raises its cost, apart from the fact that the diversion of pig iron to uses other than steel-making helps to create or aggravate imbalances between reduction capacity on the one hand and steel-making and rolling capacity on the other, such as are to be found in many integrated steel mills in Latin America.

The object of the study, which should be started in about February 1967, is to make a survey of the sources of supply from which pig iron is obtained by the metal transforming industry in each of the Latin American countries, and to analyse the possibility of creating other sources, either at the national level, through the development of adequate production facilities or the technological improvement of those already in existence, or on a regional scale, through the promotion of sources of supply particularly appropriate for this line of production. As regards the latter alternative, additional possibilities respecting probable regional producers other than Brazil will be considered, such as, for instance, the development of pig iron production in charcoal furnaces, near the Mutún mines in Bolivia.

3. Technological research in the iron and steel industry

For some years past, Brazilian agencies have been displaying interest in securing United Nations support for the establishment of a regional centre for research on the iron and steel industry, either in the form of expansion of the activities of an existing institute with experience in work of that type, or as a new undertaking. Conversations held over a long period of time recently crystallized in a preliminary project, on which the agencies in question are now being consulted. The definition of the research work that should be carried out is based on the survey of problems mentioned above, among the completed reports, as having been made early in the current year by Professor Luis Correa da Silva, from the Technological Research Institute of the University of São Paulo, in his capacity as consultant to the Programme.

The action taken by the Programme in this connexion was prompted by two United Nations agencies - the Special Fund and the Advisory Committee on the Application of Science and Technology to Development - which are energetically promoting technological research in Latin America, and have requested the collaboration of ECLA and of the Programme in the relevant projects. Those responsible for the Programme are keenly aware of how desirable it is that the undertaking finally launched in the field of steel-making should be of a regional character; i.e. that the institute which is established or expanded with United Nations backing should place its services at the disposal of the whole of the Latin American iron and steel industry, through whatever agreements or other arrangements may prove satisfactory.

In view of the complexity of the matter, the consultations at present under way cannot be expected to end before the middle of the coming year.

4. Advisory assistance in the field of steel-making

In all likelihood, the entry into operation of the IDB Pre-Investment Fund will lead to a renewal of the Programme's activities in relation to the iron and steel industry, since there are several development possibilities whose feasibility could be analysed through the Fund in question and whose preliminary phases could be explored with the technical assistance of the Programme. A case in point is the provisional analysis of the exploitation of the Mutún mines in Bolivia, which is being undertaken at the request of IDB.

/In connexion

In connexion with Central America, too, the collaboration of the Programme has been applied for, and to this end consultative meetings with national and regional agencies have been held. These activities will be continued and probably intensified during the coming months.

5. Future activities

The comments formulated in the previous progress report with respect to possible future studies on the iron and steel industry still hold good, but mainly in relation to long-term prospects, since the more immediate advisory assistance activities, and possibly also work in support of the IDB Pre-Investment Fund, will absorb the Programme's very limited human resources in this field.

III. NON-FERROUS METAL INDUSTRIES

A. WORK COMPLETED

1. Perspectivas del desarrollo de la industria del aluminio primario y posibilidades de integración regional
(ST/ECLA/Conf.23/L.26)

This study, of which an account is given in the earlier progress report, was undertaken by Mr. Armando Martijena, in his capacity as consultant to the Programme, and the provisional text has already been completed. It includes projections of demand by 1975, an analysis of the region's deposits of aluminium ore, a detailed description of appropriate techniques for the extraction of bauxite and for the production of alumina and primary aluminium, and estimates of the physical inputs required in each of these phases. The influence of scales of production on costs and investment is also analysed, and lastly models are formulated for the grouping of markets and the siting of future primary aluminium production centres, with a view to the preparation of costs and investment estimates.

Without attempting to make an exhaustive study of this complex branch of industry, the report presents a broad picture of its existing situation and future prospects, which will provide the background material for a decision with respect to a more detailed analysis.

B. CURRENT AND FUTURE ACTIVITIES

1. Development prospects and regional integration possibilities of the copper industry

In the previous report on Programme activities the outline adopted for the analysis of the copper industry was described, and the completion of the pertinent report was forecast for the first half of the current year. Owing to unforeseen difficulties, mainly connected with the availability of technical experts in this field, the deadline was put forward to the end of the year. As the work has proceeded, moreover, it has become necessary to shift the emphasis from the processing or transforming of copper,

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where it was originally to be placed, to the phases of extraction and refining. The close interconnexion of these two aspects of the industry, especially with respect to changes in the world market situation and their inevitable repercussions on the region's prospects, determined the gradual modification and expansion of the original project.

2. Development prospects and regional integration possibilities for the tin, zinc and lead industries

The need to embark upon studies dealing with those non-ferrous metal industries for which conditions are especially favourable in the Latin American countries at less advanced stages of economic growth is particularly urgent in view of the necessity of giving priority to the promotion of these countries' development. The Programme of work for the coming twelvemonth includes a preliminary analysis of resources, markets and smelting techniques for the tin, zinc and lead industries. At a later stage, this provisional report will probably be supplemented by an analysis of production costs in relation to different sitings, and any other studies that may prove needful. This work should be started early next year.

IV. THE CHEMICAL INDUSTRY

A. WORK COMPLETED

1. La industria química latinoamericana en 1962-64 (E/CN.12/756)

This study, which was issued in July 1966, brings up to date the statistical information on production, imports, apparent consumption and plans for expansion in relation to the principal sub-items in this sector (seventeen in all), thereby carrying out the recommendation made by the seminar on the development of the chemical industry in Latin America, held under ECLA auspices, at Caracas in December 1964, to keep up to date the survey of the chemical industry presented to the Seminar.

The main interest of this study lies in the fact that it assembles, evaluates and summarizes scattered and fragmentary data that cannot be obtained from a single source in any country. The over-all picture it presents is the result of a detailed survey of a whole host of public and private agencies connected with the chemical industry in each of the Latin American countries, frequently supplemented by a body of primary data obtained from the enterprises themselves.

The study orders and analyses data on the foreign trade of all the Latin American countries save Cuba, and on production and apparent consumption in Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela between 1962 and 1964 together with partial data on other countries. With the aid of these figures, the evolution of the chemical sector was assessed in terms of the share of the different sub-items in production and apparent consumption, of import trends and of the degree of import substitution achieved. Of particular interest for regional integration is the comparison that has been made between the growth rates of production and apparent consumption and between import substitution trends in the different Latin American countries.

2. Fertilizer supplies in Latin America

During the second meeting of the Working Group on Fertilizers of the Interamerican Committee on the Alliance for Progress (ICAP) (see point 3), the Joint Programme submitted a preliminary report (E/CN.12/L.10) in which

/it analysed

it analysed, country by country, the production of nitrogenous, phosphate and potassium fertilizers, and the projects for plant expansion or the addition of new installations. The supply prospects on the basis of existing industry and of the projects that are being put into effect in the main producer countries in the region are measured against fertilizer demand as estimated in recent studies by ECLA/FAO Joint Agriculture Division in order to obtain some idea of the situation in 1970 and 1975.

The two annexes to this study are particularly important. They furnish technical and economic data (estimates of production cost structures) on hypothetical plants with different sizes, characteristics, and raw material inputs, producing nitrogenous and phosphate fertilizers. The cost estimates made on the basis of these data are of about the same order of magnitude as the costs in real plants in which the technical characteristics of the raw materials and the production capacities are similar to those of existing or projected plants in Latin America.

The main purpose of these annexes is to provide a means of gauging the feasibility of the different projects prepared for the region by comparing their production costs and thus obtaining a valuable yardstick for singling out those that are most appropriate for the region as a whole, and best fitted to supply the agricultural sector with the fertilizers it requires at prices comparable to those obtained on the world market.

Thus, this theoretical cost analysis for hypothetical plants represents an attempt to implement the recommendation framed at the first meeting of the ICAP Working Group to the effect that projects prepared but not yet put into execution should be evaluated in terms of their production costs. A direct cost assessment would have been impossible because of the difficulty of obtaining the necessary information and the conceptual differences in the methods of calculation used for the projects.

This preliminary draft has been revised in consultation with the public and private sectors in each country and is to be submitted to the third session of the ICAP Working Group on Fertilizers (E/CN.12/761).

3. ICAP Working Group on Fertilizers
(Second meeting)

The Working Group held its second meeting in Washington towards the end of May 1967^{2/} with the two-fold of reviewing the activities of the various international and inter-American organizations that are concerned with the use and production of fertilizers and of considering the possible balance of supply and demand in respect of nitrogenous, phosphate and potassium fertilizers in 1970 and 1975 in the light of the studies requested at the previous meeting.

The Joint Programme was asked to prepare a full report on the present situation and future prospects of the fertilizers industry, with special reference to production costs and the way in which the industry should develop if its output was to be priced at international market levels. The results are embodied in the above-mentioned report. All that remains to be done is to add the conclusions of the meeting, and the work programme for the coming months.

In view of the impact that they are likely to have on the future work of the Joint Programme and of other bodies such as the IDB Pre-Investment Fund, a summary is given below of the ideas and criteria set forth in the conclusions and recommendations of the meeting that were specifically concerned with the fertilizer industry.

The fertilizer industry in Latin America should try to achieve a technical structure, plant size and location compatible with its main purpose, which is to supply fertilizers at the lowest possible cost to the agricultural sector and to the other regions whenever exportable surpluses are available. The expansion of the regional market through the gradual and substantial reduction of tariff and other barriers to trade will also help to bring this about. The establishment of the industry on a regional basis will, when accompanied by the other requisites for harmonizing external policies and tariffs, enable a system of trade to be set up within a reasonable

^{2/} Informe final de la segunda reunión del Grupo de Trabajo del CIAP sobre Fertilizantes (CIAP/23, Washington, 10 June 1966).

space of time, under which the capital of public and private concerns will be invested in accordance with the economic dictates of maximum efficiency and productivity.

It was also recognized that the formation of a common market for fertilizers should be paralleled by comparable action in regard to the other inputs of major importance for agriculture. For similar reasons, consideration should also be given to a policy for manufacturing the equipment needed for the development of the fertilizer industry as part of the movement towards regional integration.

On the basis of the information given in the studies submitted for its consideration, the Group was of the opinion that, in purely quantitative terms, there was unlikely to be any problem in supplying the region with nitrogenous fertilizers over the medium term, and that, on the contrary, installed capacity and the capacity of the projects at different stages of execution would exceed estimated demand. However, it was thought desirable that an examination should be made of the projects in course of preparation in the different countries so as to determine their economicity.

The supply situation as regards phosphate and potassium fertilizers is not the same. The region apparently has adequate reserves of phosphate fertilizers, and projects for their economic development have recently been prepared. Known reserves of potassium fertilizers are, however, very small. In both cases much more intensive prospecting should be undertaken.

4. La industria petroquímica en América Latina (E/CN.12/744)

An outline of this study, which was published in March 1966, is given in the last progress report. The study analyses the evolution and present situation of the industry in the region, and considers the problems and limitations of basic raw material supplies in terms of the industry's future development.

Stress is laid on the institutional aspects that have played a part in determining the planning of the sector, such as the delimitation of the field of action open to public and private petroleum concerns by government control over entry into the industry.

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Lastly, the study offers a new methodological approach to the industry and to the products that are regarded as indicators of its development.

The completed analysis and description of the Latin American petrochemical industry can be used as a basis for possible advice and assistance at a later stage in regional programme formulation and project evaluation.

5. The transfer of know-how in the chemical industry

Mr. Kurt Politzer, consultant to the Joint Programme, prepared a short paper on the different types of know-how needed for the development of a diversified chemical industry, the cases in which know-how can and must be of foreign rather than local origin, and current international usage as regards the transfer of know-how. This paper,^{8/} which was presented at the Latin American Symposium on Industrial Development, is one demonstration of what is actually a constant concern of the Programme, that is, the solution of the problems posed by the development of a Latin American technology to complement contributions from abroad. By means of studies of limited scope or on certain aspects in respect of different sectors of the chemical industry, several of which have already been prepared and are listed either in this or the preceding progress report, it is hoped to assemble a body of information on the subject so as to replace the rather sporadic measures that have been taken so far to foment technological research in Latin America by a more systematic and effective course of action.

B. CURRENT AND FUTURE ACTIVITIES

1. Regional report on the sodium alkalis industry

This project, whose aims and approach are described in the previous progress report, is nearing conclusion, and the final draft should be ready towards the end of 1966. Some chapters on individual countries have already been finished and consultations are being held with the public and private sectors concerned.

^{8/} O nível técnico e as modalidades de transferência de conhecimento técnico do exterior na indústria química do Brasil (ST/ECLA/Conf.23/L.48, March 1966).

For the purposes of this report, a survey has been made of the sodium carbonate, caustic soda and chlorine markets in each of the Latin American countries, in the light of the estimated growth of demand over the next ten years. An evaluation has also been made of the main producer centres and of the projects now under consideration with special reference to the possible location of future plants in terms of the availability and cost of the raw materials needed for the production of sodium alkalis.

Consideration has been given to the possibility of submitting the report to working groups or meetings of regional experts on the subjects, and of examining the regional implications of certain solutions to the problem of supplying these basic products.

2. ICAP Working Group on Fertilizers (Third meeting)

The Group is to hold its third meeting in November in order to re-examine the studies on fertilizers demand and supply, the latter in its revised version, and, if possible, to decide on practical measures of regional co-operation in the use and manufacture of fertilizers. At the second meeting of the Group, some ideas had already been put forward on possible steps to be taken, for discussion in the not too distant future, including a recommendation that ICAP consider the possibility of convening, in the near future, a meeting of government experts to evaluate and study the compatibility of the views held on fertilizers by the different countries of the region.^{9/} This possibility should be expressly considered at the third meeting, as should the institutional arrangements for establishing advisory machinery in the different countries to help them to prepare programmes for encouraging fertilizer consumption and expanding production.

3. Evolution of the chemical industry in Latin America, 1959-65

In order to provide an easily accessible compendium of information on the development of the chemical industry between 1959 and 1965, a detailed survey will be made of production and consumption in 1965, with some preliminary estimates of trends in 1966. The aim of this study will be to provide more

9/ Informe final de la segunda reunión del Grupo de Trabajo del CIAP sobre Fertilizantes, op.cit.

precise data than those supplied in earlier studies by presenting statistical series on production, imports and consumption of chemical products in the Latin American countries. In addition, other aspects of the chemical industry will be quantified, such as manpower, current price levels and real and projected capacity, in order to provide an up-to-date picture of its development in the region.

Owing to difficulties and delays in obtaining the figures for 1965, the study will be completed in the second half of 1967.

V. PULP AND PAPER INDUSTRY

A. WORK COMPLETED

1. Pulp and paper in Latin America

The regional report on the pulp and paper industry in Latin America, which was first issued in April 1965, was revised again before submission to the Review Consultation on Pulp and Paper, which took place in March 1966 (see annex).

The revised version was distributed under the title of El papel y la celulosa en América Latina: situación actual y tendencias futuras de su demanda, producción e intercambio (E/CN.12/570/Rev.3), and brings up to date the figures for production, trade, apparent consumption and additions to capacity, in relation to pulp, paper and paperboard.

2. Problems of size and modernization

During the period under consideration, three documents on these problems were prepared and submitted to the Review Consultation.

The first deals with economies of scale in pulp and paper production in comparable conditions to those prevailing in Latin America as regards the efficiency with which the factors of production are used (ECLA/BTAO/FAO PREP CONS/PAPER II/1). This subject had been discussed in an earlier study prepared by the Pulp and Paper Advisory Group in which an analysis is made of economies of scale in pulp and paper production in conditions of the kind prevailing in North America.^{10/} It was, however, considered worth while to give it more extensive treatment in a further paper covering a larger number of products and scales, and also taking into account the average conditions for unit inputs in the region.

The second paper is concerned with the economic aspects and operating conditions of small pulp and paper mills in Argentina and Brazil (ECLA/BTAO/FAO PREP CONS/PAPER II/2), and was prepared by two consultants

^{10/} Programming data and criteria for the pulp and paper industry (ST/ECLA/Conf.11/L.19) prepared by the ECLA/FAO/BTAO Pulp and Paper Advisory Group and submitted to the Seminar on Industrial Programming, held at São Paulo, Brazil, from 4 to 15 March 1963.

from those countries. A small number of fairly typical mills were selected, and a study made of their operating conditions, financial situation, type of entrepreneur and the principal factors involved in their establishment and co-existence with bigger mills.

The third paper discusses the economic aspects of the modernization and expansion of small pulp and paper mills with special reference to Argentina and Brazil (ECLA/BTAO/PREP CONS/PAPER II/3), and was drafted by the same consultants. It analyses various problems and criteria relating to the modernization and expansion of small mills, such as process integration based on the raw material or the production of paper and board, changes in equipment, specialization of production, amalgamation of enterprises, etc.

3. Exports of pulp and paper products

Latin America offers vast possibilities for the future exportation of pulp and paper products to the world market, and it is hoped to realize them through the medium of UNCTAD. In this connexion, a consultant was asked to prepare a preliminary study on the Prospects for Latin American pulp and paper exports to overseas (ST/ECLA/Conf.23/L.40).

For want of the necessary information to make a more comprehensive study on this question, the above-mentioned paper will be expanded and brought up to date.

4. Other work

The Advisory Group has also prepared a number of other documents dealing with pulp and paper research in Latin America, the need for technical education and training, and the financing of the industry by national institutions.

5. Review consultation on pulp and paper development in Latin America

This consultative meeting on the development of the pulp and paper industry in Latin America was held at Santiago, Chile, from 17 to 22 March 1966.

The purpose of the meeting was to assess the progress made since the Latin American Meeting of Experts on the Pulp and Paper Industry, held in 1954 at Buenos Aires and to review the present situation of the industry as regards its markets, plans for expansion and factors influencing

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the efficiency of its operations. It was attended by representatives from most of the Latin American countries and observers from countries outside the region.

The final report appears as annex IV of the report of the Latin American Symposium on Industrial Development, which was held at the same time as the Review Consultation. The main recommendations of the meeting were as follows: (a) the Pulp and Paper Advisory Group should study and prepare a report on the present situation of the newsprint industry, and should call a special meeting to discuss and analyse the report in order to recommend to governments the measures that it would be advisable for them to take to stimulate production; (b) a study should be made of the economics of packing, storing and transporting bagasse to be used as a raw material in paper production; (c) more studies should be made on the use of the non-conventional resources available in Latin America for paper and board manufacture; (d) the studies on the use of paper and board for packing should be continued; and (e) studies should be made on the technical and economic aspects of tropical softwoods as a source of long-fibre paper pulp.

6. Advisory services

In response to a request from the Inter-American Development Bank, the Advisory Group undertook a mission to Brazil to evaluate the market for pulp and paper products there. The mission lasted for two months, concluding with the preparation of a report and its submission to FAO in Rome and IDB in Washington.

In answer to government requests, the Advisory Group lent its services to the following countries:

Cuba. The possibility of improving operational conditions in existing integrated mills studied, and the exploitation of the coniferous plantations as a source of raw material for long-fibre pulp was recommended.

Honduras. The advisability of using earlier reports as a basis for the establishment of an integrated kraft paper mill to supply the Central American market was weighed up against the possibility of making new studies.

Panama. Advice and assistance were given on the question of whether to set up a group of representatives of different government bodies to promote the pulp and paper industry, and suggestions were made on the possible development of the sector.

B. CURRENT AND FUTURE ACTIVITIES

1. Advisory services

The Advisory Group will continue to lend its services to the different Latin American countries as in the past, and will also collaborate with the working group on the pulp and paper industry set up in ALALC.

2. Evolution of the industry

The data on pulp and paper production and trade being brought up to date, together with the information on past changes and foreseeable increases in installed capacity.

3. Future work

The activities of the Advisory Group will be concentrated, as far as time and staffing resources permit, on carrying out the recommendations of the Review Consultation and on the preliminary work for a conference to be held in 1968 or 1969.

The first steps are now being taken to implement the recommendation on newsprint. It is planned to send the participants in the Review Consultation a note with an outline of the basic document, the programme of action and the provisional agenda for the meeting on newsprint, with a view to obtaining their comments.

VI. METAL-TRANSFORMING INDUSTRIES

A. WORK COMPLETED

1. Las máquinas-herramientas en la Argentina (E/CN.12/747)

This study, the content of which was described in the report on last year's activities, has since been completed. The National Development Council (CONADE) and the Banco Industrial, which co-operated in it, have approved the final version, now awaiting publication. The document presents the estimated evolution of the machine-tools inventory up to 1975, both for the industry as a whole and for the various categories of machines. Present supply and the operating conditions of the domestic industry are also analysed with a view to assessing the possibilities of stepping up domestic supplies in relation to imports. Proposed measures for promoting the expansion and diversification of this industry include the establishment of a machine-tools technological institute on bases which are outlined in detail. This proposal has been favourably received in entrepreneurial and official circles and is likely to be put into practice.

2. The metal-transforming industry in Colombia

The provisional version of a study on Colombia's metal-transforming industry, which had been envisaged for a later date and had to be put forward at the express request of the government authorities, has also been completed. It was prepared with considerable local assistance (from the Administrative Planning Department, the Federation of Metallurgy and the Institute of Technological Research) and covers all mechanical and electro-mechanical industries. The structure, technological level and operational efficiency and productivity of the existing industry are extensively analysed; particular attention is paid to the technological level, and an attempt is made to determine the basic techniques and processes which are lacking today, and must be introduced if Colombia's metal-transforming industry is to make progress in attaining more ambitious production targets. To that end, specific suggestions are made, as well as in some cases estimates of the

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inputs and other requirements for the preparation of new industrial projects such as foundries (grey iron and non-ferrous casting and die-casting), machining of complex parts, automatic turning, production of different types of gears, etc.

In addition to the analysis at the micro-economic or individual project level, other analyses and estimates are made in relation to the demand for capital goods in 1966-75 and the possibilities of satisfying it increasingly with locally-produced goods. The detailed nature of the information gathered and the recommendations put forward, combined with the fact that due account is taken of growth prospects of the whole Colombian economy, make this report a useful point of departure for programming the development of this important sector of domestic industry. Meetings for purposes of consultation with the public and private sectors are scheduled to be held before the end of the year to revise the provisional version and at the same time to outline some additional studies for promoting specific sectors, on which a start could be made in the near future with technical assistance from the United Nations and other sources.

B. CURRENT AND FUTURE ACTIVITIES

1. The metal-transforming industry in Ecuador

As in the case of Colombia, the study of Ecuador's metal-transforming industry, which was not envisaged in the previous progress report, was started earlier at the request of planning bodies in that country. The field work has been completed and the report, which is in the drafting stage, should be finished by the end of the year. In view of the relatively small size of the domestic market for products of the metal-transforming industry, which points to the fact that import substitution will in the long run have a limited scope, the aim is to outline the alternative development and specialization possibilities open to Colombia's metal-transforming industry, with due regard, among other factors, for the possible establishment of a Latin American common market. This report forms part of the series of country studies on the metal-transforming industry, of which those on Venezuela, Uruguay and Colombia are already completed.

12. The

2. The basic equipment industry in Latin America: regional report

As stated in the previous progress report, the preparation of the regional study on the manufacture of basic industrial equipment has been going ahead with the co-operation of national institutions in Argentina, Brazil and Chile. Unfortunately, the last twelve months have witnessed little progress in this study and the work will have to be extended at least until the end of the first quarter of 1967. Besides the various difficulties confronting the agencies that are collaborating in this project, it proved impossible to make the necessary arrangements in some countries; therefore, the final report scheduled to be finished in 1967 is unlikely to cover the whole of Latin America.

3. The machine-tools industry in Latin America: regional report

A thorough study has already been made of the manufacture and use of machine-tools in Brazil and Argentina. Individual studies will not be prepared for the remaining countries, but information will be gathered and processed for inclusion in the regional report. The work in Mexico, which was announced in the previous progress report, could not be carried out despite persistent efforts to reach an understanding with the local institutions. On the other hand, the study of Colombia's metal-transforming industry includes all the criteria needed for that country, and an extensive survey is in process on the inventory of machine-tools in the whole of Chilean industry and other local activities. The compilation of data on other countries will continue next year through special studies of the consultation of reports on the metal-transforming industry as a whole. But it is unlikely that all these data can be consolidated in a regional report before 1968.

4. Study on the motor-vehicle industry in Latin America

Hitherto it has been impossible, for want of resources and the priority given to other studies not originally envisaged as in the case of Colombia and Ecuador, to embark on a study of the motor-vehicle industry in Latin America, its present position and possible forms of regional

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integration. It is hoped that the first stage of the work will be completed in the course of next year. It will probably comprise market studies and the calculation of demand projections for each individual country; a detailed review of existing industry, its structure, investments and other basic features; and a description of all the projects and programmes for the industry's development which have been prepared in nearly all the Latin American countries. If resources permit, an attempt will be made to include in this stage a study of the incidence of economies of scale in the manufacture of the main parts and components, and also in the assembly of vehicles. On the basis of these criteria - a thorough knowledge of the market, of existing industry and of the incidence of economies of scale in manufacturing costs - in the next stage it would be possible to deal with such questions as forms of regional integration and the instruments best calculated to promote it.

5. Seminar on the manufacture of machinery

Some Programme experts took part in the Inter-Regional Symposium on the Development of Metal-working Industries in Developing Countries, which was held at Moscow in September 1966, under the sponsorship of the United Nations. The Programme presented six documents, of which four had already been issued ^{11/} and two were prepared specially for the Seminar. ^{12/} In these last two documents consideration is given to the most suitable methods and criteria for programming the development of the machinery industry in general and the machine-tools industry in particular.

11/ La industria mecánica de Venezuela: Un programa de sustitución de importaciones para su desarrollo (E/CN.12/737); La fabricación de maquinarias y equipos industriales en América Latina: IV. Las máquinas-herramientas en la Argentina (United Nations publication, Sales No.: 64.II.G.5); The manufacture of industrial machinery and equipment in Latin America: II. The machine-tools industry in Brazil (E/CN.12/633); The metalworking industry in Latin America (CID/SYMP.D/A-5).

12/ Criteria and background information for programming the machine-tool industry (CID/SYMP.D/C-4); Methodological problems in connexion with programming the development of the machine-tool industry in developing countries (CID/SYMP.D/C-11).

6. Advisory services

Frequent consultations were held with institutions in Argentina (CONADE, The Machine-Tools Manufacturers' Association and the Banco Industrial) and Brazil (Banco Nacional do Desenvolvimento Econômico - BNDE), with a view to the implementation in both countries of a recommendation similar to that included in the respective reports on the machine-tools industry. In accordance with this recommendation, institutions would be set up mainly to provide technical assistance to the small and medium establishments which make up the bulk of the machine-tools industry, to carry out research on the adaptation of techniques and metal-working equipment to the particular conditions prevailing in each country, and to offer the industry extensive facilities for methodological trials. As a result of these consultations, requests would be prepared enlisting the support of the United Nations Development Programme for technical machine-tools institutes in those countries.

VII. THE TEXTILE INDUSTRY

A. WORK COMPLETED

1. The textile industry in Latin America

National reports: the reports on Venezuela (volume X) and Mexico (volume XI) were completed and published. This completed the series of country studies covering Chile, Brazil, Colombia, Uruguay, Peru, Bolivia, Paraguay, Argentina and Ecuador, in that order.

The Venezuela report examined the way in which the textile industry established itself on a large scale in a relatively short period of time and to a large extent replaced imports. It also provided an opportunity for analysing the operating conditions in a textile industry considered to be the most modern in Latin America.

The Mexico report was prepared with the assistance of the Nacional Financiera, which had made a study of the textile industry with a view to planning the industry's reorganization and modernization. The equipment used in the Mexican industry, which was established many years ago, is largely obsolete.

The country studies are all similar in structure and mainly attempt to describe the operational characteristics of the textile industry by means of an analysis of labour productivity, the degree of efficiency, utilization and up-to-dateness of the machinery, the size of the establishments, etc. They also analyse actual and estimated production costs under present and optimum conditions, and make a diagnosis of present and future market trends. They were based on direct inquiries conducted in the mills and were prepared with the full co-operation of the entrepreneurial associations. In this way, a high degree of accuracy was obtained in the inquiry and the support of the entrepreneurial associations was ensured for future action needed to carry out the recommendations contained in the studies.

2. Economies of scale in textile manufacturing

A report entitled Economies of scale in the cotton spinning and weaving industry (E/CN.12/748) was completed. This subject had already been dealt with in previous studies, which were revised and systematized in this new version, which also contained a certain amount of new material.

In brief, the report shows that economies of scale in the textile industry are not very marked where mills are larger than the optimum size, which relatively speaking is quite small. It is pointed out, however, that where mills are below the optimum size there is a tendency for considerable diseconomies to occur. The data contained in the report will be particularly useful for the programming of new textile industries, since they provide detailed information on physical inputs, machinery and investments in different sizes and types of mills.

3. Choice of different technologies in the Latin American textile industry

During the period under consideration in this report the study entitled Choice of technologies in the Latin American textile industry (E/CN.12/746) was completed. It deals with the choice of equipment for modernizing the machinery inventory and increasing production capacity, a problem of fundamental importance in Latin America, where the absorption of labour is one of the chief concerns of economic development in general. Modern production techniques tend to be capital-intensive and to reduce employment, reflecting as they do the situation in the highly-industrialized countries as regards capital availability and labour costs. It is, moreover, these countries which in the main supply the equipment used in Latin America.

The study analyses various textile manufacturing techniques, since it is a characteristic of the textile industry that there are several techniques, that can be used for the same production process. The conclusions on the amount of investment required, production costs and employment levels, according to the different techniques, provide a useful basis for programming the development of the textile sector.

4. Exports to the world market

A preliminary study on world market prospects for textile exports was presented at the Latin American Symposium on Industrial Development. This study, entitled La exportación en el mercado mundial: una perspectiva para el desarrollo de la industria textil latinoamericana (ST/ECLA/Conf.23/L.43) and prepared by Mr. Roger Haour, an ECLA consultant, contains a preliminary analysis of existing conditions in Western Europe and a number of Latin American countries as regards production costs and certain basic inputs in textile manufacturing. The conclusion is reached that, if present operating conditions in Latin America are improved and productive resources, labour, machinery and raw materials are used to better advantage, the Latin American textile industry could compete on the world market. On the other hand, it recognizes the problems raised by marketing and securing access for these products to the world market.

5. Advisory and other activities

The work in progress and the shortage of personnel meant that the advisory services could not be extended as much as would have been desirable, in view of the interest shown in the various countries for which national reports had been prepared and in view of the need to prepare programmes of action based on the conclusions reached in those reports. During the period under consideration, advisory services continued to be provided in Chile, where the Servicio de Cooperación Técnica, adopting the methodology used by ECLA, carried out an inquiry in order to bring up to date the national study prepared by ECLA several years ago, thus providing information on the changes that had occurred in the operating conditions in the Chilean textile industry during that period.

In addition, the Joint Programme co-operated with the United Nations Centre for Industrial Development in the organization of the Inter-regional Seminar on the Textile Industry, held in Lodz, Poland, in September 1965, which was attended by experts from the different developing regions and from the industrialized countries. An official of the Joint Programme played an active part in preparing, organizing and directing the Seminar, at which several of the documents prepared by ECLA on the Latin American textile industry were presented.

B. CURRENT AND FUTURE ACTIVITIES

1. The Latin American textile industry: regional report.

A regional report on the Latin American textile industry is being prepared, on the basis of the information gathered in the various regional studies and in the technico-economic studies referred to above. This report is nearly completed and it is hoped that a preliminary version will be available by the end of 1966, when it will be sent to the institutions and agencies concerned for their criticisms and observations before proceeding to final publication. In this way, it is hoped to have the observations of the official agencies and textile associations of the different countries for which national reports have already been prepared.

The regional report will be based mainly on previous inquiries carried out in each country and will also include information on Central America gathered under the Central American Economic Co-operation Programme in accordance with a schema similar to that used in the country studies. It is also planned to include data on other regions of the world for the purposes of comparing the Latin American textile industry with that of other regions or areas. Production costs in the different countries will be given and possible ways will be suggested of reducing the disparities observed and thus facilitating agreements for the promotion of intra-regional trade in textile products.

The report will also analyse the present and future state of the market in textile products, outlining for the first time possible changes in consumption patterns in respect of fibres. Similarly, several analyses will be made of future total consumption on the basis of different estimates of price trends and the degree of competition stimulated by demand for these products. Export possibilities to those markets outside the region where natural conditions favour the Latin American producer will also be considered. Finally, taking into account various programming criteria, as well as economies of scale and choice

/of techniques,

of techniques, estimates will be made of the investment required to satisfy projected demand. These estimates will include the investment needed both to increase production capacity in line with the growth of demand and to meet the modernization needs identified in the regional studies.

It is thus hoped to express, both in physical (equipment and machinery) and financial terms, the total amount of investment required for the textile industry, and thereby provide guidelines for the programming of the industry at the regional level and for the future expansion of the manufacture of textile machinery in Latin America.

2. Advisory services

Once the regional report is completed, it is planned to convene a group of experts from Latin America and other regions of the world in order to consider the documentation prepared under the Programme. This group of experts will discuss two main problems: the different technological possibilities open to the industry in respect of capital-intensive production and an economic evaluation of those possibilities; and the means and procedures for establishing a regional specialization programme, together with regional measures for the reorganization, modernization and re-equipment of the industry.

In addition to the above, the Joint Programme is co-operating with the Latin American Institute for Economic and Social Planning in giving a course on the textile industry, as part of the subject of industrial planning in the Institute's annual Basic Training Course. The purpose of this course is to provide the students with some theoretical knowledge about the planning of traditional industries, taking the textile industry as an example, and at the same time to acquaint them with the practical experience in planning gained in the region in that sector.

3. Future work

Future studies will concentrate on productivity in terms of both labour and machinery, since previous studies have indicated that these are the most important aspects. Experience has shown that the improvement

/of either

of either entails considerable modernization of equipment. The importance of improving productivity has already been stressed in previous studies and it is even more important at the present time, when the Latin American countries are striving to hasten the process of integration while at the same time turning towards extra-regional markets. A programme for improving productivity would make a decisive contribution to the more rational utilization of the factors of production by reducing production costs, which is essential if regional consumption is to be increased and the Latin American industry is to be able to compete in foreign markets.

In this connexion, it is hoped to collaborate with the Inter-American Productivity Association (AIP) and the Inter-American Development Bank in a joint industrial productivity programme. Under this programme, which would be closely linked with regional integration, an analysis would be made of industrial productivity and technical assistance would be provided. One of the main sectors that could be covered by such a programme would be the textile industry, in view of the extensive productivity data available in that sector. Fundamentally, the programme for the textile industry would take the form of periodic measurement of productivity and technical assistance to private and governmental agencies co-operating in productivity programmes and programmes for the restructuring of industry. With regard to the modernization of equipment, the logical follow-up to the previous studies would be an analysis of the financial policies pursued by textile enterprises in respect of amortization and replacement of machinery, given the high degree of obsolescence noted in several countries.

It is hoped that this industrial productivity programme, in respect of which AIP has requested the co-operation of IDB and ECLA, can be started in 1967.

/VIII. GENERAL

VIII. GENERAL ACTIVITIES IN RELATION TO THE INDUSTRIAL ECONOMY

A. WORK COMPLETED

1. The process of industrial development in Latin America
(ST/ECLA/Conf.23/L.2)

The final revision of this report was completed towards the end of 1965 and it was issued as the basic document for the Latin American Symposium on Industrial Development. It served as a basis for the discussion of the initial items on the Symposium's agenda: evaluation of industrialization in Latin America and future outlook, present characteristics, industrialization policy and industrial development programming. The printed version of the Spanish text of this report (Sales No.: 66.II.G.4) was published in April 1966.

2. Crédito para financiamiento de la industria de bienes de capital en algunos países de América Latina (ST/ECLA/Conf.23/L.41)

This report, which analyses and evaluates the various existing credit mechanisms in Argentina, Brazil and Mexico for financing the capital goods industry, was completed and presented at the Latin American Symposium on Industrial Development, where it was used as a basis for the discussion of the agenda item on credit for industrial expansion. At the end of the period this document was revised and expanded.

3. National reports on industrial development

The Latin American countries were requested to prepare national reports on industrial development for the Latin American Symposium on Industrial Development. With the technical assistance of the Joint Programme, fourteen such reports were prepared: Argentina, Brazil, Central America, Chile, Colombia, Cuba, Ecuador, Guyana, Mexico, Paraguay, Peru, Uruguay, Trinidad and Tobago, and Venezuela. They contain a great deal of data and valuable information. At the Symposium, the secretariat was requested to revise and expand the reports for the purposes of comparing the experiences of the different countries and so

/that they

that they might serve as a basis for further research in the industrial field, with particular reference to industrial policy. The reports were revised and standardized where possible, and the new versions will be presented at the International Symposium on Industrial Development to be held in mid-1967.

4. Small-scale industry in Latin America

A preliminary analysis of small-scale industry in Latin America was completed and presented at the Latin American Symposium on Industrial Development in the report entitled La pequeña industria en América Latina: un análisis preliminar (ST/ECLA/Conf.23/L.47). This document was revised and expanded for the Seminar on Small-scale Industry in Latin America to be held in Quito towards the end of 1966. The first part of the document analyses the economic importance of small-scale industry and emphasizes its dynamic role in the general development process and its importance as a source of employment. For this purpose, it uses as indicators small-scale industry's share in the product and employment, and analyses labour productivity, structure by major groups and the obstacles that have slowed its development. The second part of the document reviews the main economic policy measures applied by the various Latin American governments, with particular emphasis on those relating to development planning, technical and financial assistance and international co-operation.

5. The Latin American Symposium on Industrial Development

The Latin American Symposium on Industrial Development was held in Santiago, Chile, from 14 to 25 March 1966, and was attended by 86 representatives of States members of the Commission, 18 observers from various countries and 20 from international agencies. During the first week, the present characteristics of industrialization in Latin America and its future prospects were discussed in plenary, and then parallel working groups were set up to discuss the present situation, problems and prospects of the main industrial sectors: the basic metals, chemical,

pulp and paper, metal-transforming and textile industries. During the second week, problems relating to financing, exports and small-scale industry, the transfer of technical know-how, technological research and technical and financial assistance were dealt with. The item on the International Symposium on Industrial Development was the subject of a special debate and there was general support for the proposal that the ECLA secretariat should hold informal consultations with the member Governments of the Commission in order to study the possibility of adopting a common Latin American position at the International Symposium, to be defined in a document to be submitted for the consideration of the Commission at its session in Caracas.

6. Industrial development in Latin America in 1965

A report on the most important aspects of industrial development in Latin America was prepared as part of the 1965 Economic Survey. It contained, inter alia, an analysis of the main trends and new projects in the steel, aluminium, motor-vehicle, and pulp and paper industries.

7. Problems relating to the transfer of technical know-how and applied technological research

The problems relating to the transfer of technical know-how and applied technological research have always been part of the Joint Programme's field of activity and study. A number of studies were undertaken by consultants, with a view to elucidating certain important aspects. These studies were presented at the Latin American Symposium on Industrial Development and consisted of the following: La tecnología actual y los obstáculos a su incorporación en la industria siderúrgica latinoamericana (ST/ECLA/Conf.23/L.34) by Mr. A. Martijena; O nível técnico e as modalidades de transferência de conhecimento técnico do exterior na indústria química do Brasil (ST/ECLA/Conf.23/L.48) by Mr. K. Politzer; Conocimiento técnico necesario para la industrialización de países poco desarrollados y obstáculos que se oponen a su transferencia (ST/ECLA/Conf.23/L.12) by Mr. E. Orosco; Problemas que requerem pesquisas tecnológicas na indústria siderúrgica latinoamericana e

/reflexões sobre

reflexões sobre a ação necessaria (ST/ECLA/Conf.23/L.44) by Mr. L. Correa da Silva; and Research on pulp and paper in Latin America (ST/ECLA/Conf.23/L.6) prepared by the ECLA/FAO/BTAO Pulp and Paper Advisory Group for Latin America.

These studies deal with partial aspects of the general problem of technology and its transfer from abroad and analyse them from different standpoints. Nevertheless, they represent an important contribution to the gradual building up of a systematic picture of this important problem, which takes many different forms and requires different kinds of practical solutions in the various sectors of industry. The analytical knowledge thus being acquired will largely determine the effectiveness of the advice given to Latin American governments on, inter alia, policy formulation and the promotion of institutions for applied technological research.

During this period the Regional Adviser on Technological Research assigned to ECLA carried out missions in Uruguay and Paraguay. In the former country he made a brief survey of industrial problems needing research before they could be overcome, inspected the existing institutes and laboratories and the work being done and, finally, made recommendations for co-ordinating and strengthening the system. In Paraguay, he advised the Government on the reform of the institutional framework within which the Research and Technical Standards Institute of Paraguay operates.

Another function of the Regional Adviser is to co-ordinate the activities of all ECLA divisions and programmes in the field of science and technology with the Advisory Committee on the Application of Science and Technology to Development, a committee appointed by the Secretary-General of the United Nations and reporting to the Economic and Social Council. At the Advisory Committee's request, an attempt is being made to extend those co-ordination functions, on behalf of ECLA, to all the United Nations specialized agencies with regional offices in Latin America; and to that end a meeting between the Latin American representatives on the Advisory Committee and representatives of the United Nations specialized agencies in Santiago has been planned. This

/meeting, for

meeting, for which some preparatory work has been done, will be held early in 1967 and will deal with the strengthening of regional activities in the field of science and technology within the framework of a plan of immediate action proposed by the Committee.

In the field of technological research, mention should also be made of the Conference on the Application of Science and Technology to the Development of Latin America, sponsored by UNESCO and held in Santiago in September 1965, at which several documents prepared by the Joint Programme were discussed.

8. Assistance in the teaching of industrial programming in the Institute's Basic Training Course

At the end of the period an official from the Joint Programme gave a series of lectures entitled "Examples of Industrial Planning: Venezuela and Cuba", in connexion with the study of industrial planning in the training course given by the Latin American Institute for Economic and Social Planning, just as in previous years other officials had assisted in the Institute's programme. The text of the talks was reproduced in a limited mimeographed edition.

9. Proposed tripartite industrial productivity programme

The Joint Programme participated in the V Meeting of the Inter-American Productivity Association (AIP) held in Santiago, Chile, 2-6 May 1966, and made an important contribution to the discussion of the proposed establishment of a United Nations/AIP/IDB tripartite industrial productivity programme. This programme would take the form of analyses, studies and technical assistance activities in respect of industrial productivity, and would be conducted with the support of the three organizations in question and closely linked to regional integration. The studies would cover the productivity of labour as well as of other factors of production, particularly capital, since in some cases attempts to achieve a significant increase in productivity will concentrate on greater and more rational utilization of equipment and machinery. The programme would be drawn up annually or every two years and would be approved by the sponsor organizations. It would be made up of specific

/projects to

projects to be undertaken by national productivity institutions within a fixed time-limit, using their own resources and additional resources received from the tripartite programme. The specific projects should be directed mainly towards sectors or branches of the traditional industries and some of the metal-transforming industries.

B. CURRENT AND FUTURE ACTIVITIES

1. Seminar on Small-scale Industry in Latin America (Quito, 28 November - 5 December 1966)

Preparations are being made for a Seminar on Small-scale Industry in Latin America, with the co-operation of the Centre for Industrial Development and the Bureau of Technical Assistance Operations and the active support of departments of the Government of Ecuador. The purpose of the Seminar will be to examine the present situation of small-scale industry, the problems arising from its size, and its future prospects within the process of industrial development in the Latin American countries.^{13/} In the course of its discussions, the Seminar will consider the industrial policy measures and decisions that should be adopted in each country for the promotion and development of small-scale industry, and the form that international co-operation should take if these aims are to be achieved. Both general questions and issues bearing on specific branches of industry will be dealt with. The conclusions reached in the course of the exchange of views on these subjects will be presented in a final report that will be submitted to the Governments for their consideration, through the United Nations. The Seminar will be attended by experts and officials from the Latin American countries who have direct responsibility in the field of small-scale industry. Extensive documentation is being prepared for the Seminar, with the co-operation of consultants and the Centre for Industrial Development.

^{13/} See the corresponding agenda in annex 1.

2. National reports on small-scale industry

With a view to comparing the experiences of the different Latin American countries in the field of small-scale industry, the Governments were requested to prepare national reports. For this purpose, a general outline was prepared which could be adapted to suit the particular conditions in each country and which would enable the activities undertaken in respect of financial and technical assistance, professional and vocational training, co-operatives, the development of sub-contracting procedures, etc. to be described in as much detail as possible. The purpose of these detailed descriptions and analyses of activities in the field of small-scale industry is to provide the necessary background information on each country's experience, and to serve as a basis for discussion at the Quito Seminar on the main lines of a development strategy for this sector which is of such vital importance as a source of employment. The national reports will be revised and made as uniform as possible. An ECLA consultant has visited most of the countries in the region with a view to ensuring their participation in the Seminar and the preparation of the reports.

3. Promotion of exports of manufactures

During the period under consideration the Joint Programme participated in a joint UNCTAD/ECLA project for the promotion of exports of Latin American manufactures.

As the first part of its programme, this joint project is preparing a series of studies on the short-term prospects for the exports of manufactures and semi-manufactures in several Latin American countries, an undertaking endorsed by the II Meeting at the Ministerial Level of the Ad Hoc Committee on Latin American Co-ordination (CECLA) held in Buenos Aires in May 1966 (resolution 2/66). The countries studied so far are Argentina, Brazil, Chile, Colombia, Uruguay and Venezuela. The studies are mainly focussed on the question of supply and their purpose is to illustrate the potential short-term export capacity of the countries, and the extensive field of action open to the Governments concerned over the short term, rather than to propose specific export programmes. As

/the studies

the studies analyse the ability of manufactures to compete on the world market, their conclusions in this respect are also valid for the more favourable conditions of the ALALC countries market, and the estimates thus relate to total export capacity, or exports to any part of the world.

The preliminary versions of the studies on Argentina, Brazil and Chile, the first drafts of which were submitted to the III Meeting at the Expert Level of CECLA in Mexico City, 11-23 July 1966, are nearing completion, and considerable progress has been made in relation to the studies on Colombia, Uruguay and Venezuela. The first three studies will be presented at the second session of the UNCTAD Committee on Manufactures, in accordance with the agreement made with the UNCTAD secretariat. Finally, if satisfactory progress is made, preliminary versions of the studies on Colombia, Uruguay and Venezuela will be presented at the same session.

4. International Symposium on Industrial Development

The regional symposia held at the end of 1965 and beginning of 1966 in Asia, Africa, the Arab States and Latin America will culminate in the International Symposium on Industrial Development to be held in the course of 1967. Its fundamental purpose will be to consider the present situation, problems and prospects of the industrial development process in the developing countries, with particular reference to international co-operation. It is planned to hold the Symposium during the second half of 1967, probably in New Delhi.

To this Symposium, the date of which coincides with the start of the activities of the new organization for industrial development within the United Nations system,^{14/} the Joint Programme will submit three printed reports: the Report of the Latin American Symposium on Industrial Development, a compilation of the national reports on industrial development and a study of the main industrial sectors in Latin America.

When the national reports submitted by the Governments to the Latin American Symposium on Industrial Development have been revised and

^{14/} United Nations Organization for Industrial Development (UNOID).

/expanded and

expanded and unofficial consultations have been held with the States members of the Commission, a decision will have to be made whether a document should be presented on the feasibility of the Latin American countries adopting a common position at the International Symposium.

5. Economic Survey of Latin America, 1966

At the end of 1966 and beginning of 1967 a series of sectoral studies will have to be prepared for the 1966 edition of the annual Economic Survey of Latin America prepared by ECLA.

6. Other studies

A number of other studies are under consideration, some of which have already been started in a limited form. Others will be started in the course of 1967, as funds become available. These studies can be summarized as follows:

(a) Revision and comparison of the methodology used in the sectoral studies

A start was made on the revision of the methodologies used in the sectoral studies with the revision and updating of Los principales sectores de la industria latinoamericana: problemas y perspectivas (E/CN.12/718/Rev.1/Add.1). This study will be completed by the end of 1966 and sent to the printers, and will later be submitted to the International Symposium. Subsequently, the remaining sectoral studies will also be revised. The work of revision will serve as a basis for gradually standardizing and centralizing the way in which the sectoral studies deal with fundamental economic aspects.

(b) Comparative analysis of industrial policy measures in the Latin American countries

As was agreed at the Latin American Symposium on Industrial Development, a comparative study will be made of the substantive aspects of industrialization policy in the Latin American countries, using as a basis the recently revised and expanded national reports on industrial development. Further research will also be needed on certain specific aspects of industrialization policy, and will be started as early in 1967 as possible.

/(c) Analysis

(c) Analysis of industrial planning systems and mechanisms in Latin America

It is planned to carry out an analytical study of industrial planning in the major Latin American countries, with a view to indicating ways of putting a number of planning systems into practice and improving those already under way.

ANNEX I

PROVISIONAL AGENDA OF THE
SEMINAR ON SMALL-SCALE INDUSTRY IN LATIN AMERICA
(Quito, Ecuador, 28 November to 5 December 1966)

1. The contribution of small-scale industry to the development of Latin America
 - (a) Characteristics of the development of small-scale industry in Latin America.
 - (b) The role of small-scale industry in over-all economic development strategy.
 - (c) Possibilities of developing small-scale industry in particular sectors.
 - (d) General development programmes for small-scale industry: organization, sectoral priorities and means of action.
2. The role of technical services and assistance in developing small-scale industry
 - (a) Technical services at plant level for technological rationalization: organization, administration and methods.
 - (b) Special vocational training programmes and other services for small-scale industry.
 - (c) Industrial estates: organization, administration and financing.
 - (d) Forms of co-operation and self-help.
3. Development financing for small-scale industry
 - (a) Alternative policies and their respective systems.
 - (b) Sources of funds: domestic and foreign.
4. International and regional co-operation in the field of small-scale industry
 - (a) Possible forms of international co-operation.
 - (b) Regional co-ordination: aims and mechanisms.

ANNEX II

REPORTS COMPLETED DURING THE PERIOD 1965-1966

I. Iron and Steel Industry

E/CN.12/727
February 1966
(Spanish only)

La economía siderúrgica de América Latina

ST/ECLA/Conf.23/L.49
March 1966
(Spanish only)

La exportación como perspectiva del desarrollo siderúrgico latinoamericano.

Prepared for ECLA by A. Martijena, Consultant

ST/ECLA/Conf.23/L.44
18 February 1966
(Portuguese only)

Problemas que requerem pesquisas tecnológicas na indústria siderúrgica latinoamericana e reflexões sobre a ação necessária.

Prepared for ECLA by L. Correa da Silva (Instituto de Pesquisas Tecnológicas), Consultant

II. Non-ferrous Metals Industry

ST/ECLA/Conf.23/L.26
January 1966
(Spanish only)

Perspectivas del desarrollo de la industria del aluminio primario en América Latina y posibilidades de integración regional.

Prepared for ECLA by A. Martijena, Consultant

III. Chemical Industry

E/CN.12/756
14 July 1966
(Spanish only)

La industria química latinoamericana en 1962-64

E/CN.12/761
3 November 1966
(Spanish only)

La oferta de fertilizantes en América Latina

E/CN.12/744
March 1966
(Spanish only)

La industria petroquímica en América Latina

ST/ECLA/Conf.23/L.48
February 1966
(Portuguese only)

O nível técnico e as modalidades de transferência de conhecimento técnico do exterior na indústria química do Brasil.

Prepared for ECLA by K. Politzer, Consultant

/IV. Pulp

IV. Pulp and Paper Industry

E/CN.12/570/Rev.3
February 1966
(Spanish only)

El papel y la celulosa en América Latina: situación actual y tendencias futuras de su demanda, producción e intercambio.

Prepared by the ECLA/FAO/BTAO Pulp and Paper Advisory Group for Latin America

ST/ECLA/Conf.23/L.40
January 1966

Prospects for Latin American pulp and paper exports to overseas.

Prepared by A. Sundelin (Institute for International Economic Studies, Stockholm, Sweden), Consultant

ECLA/BTAO/FAO
PREP CONS/PAPER II/1
March 1966

Economics of pulp and paper manufacture under average Latin American conditions

ECLA/BTAO/FAO
PREP CONS/PAPER II/2
March 1966
(Spanish only)

Aspectos económicos y condiciones de operación de pequeñas plantas de celulosa y papel elegidas en Argentina y Brasil.

Prepared by P. Vicien (Instituto Nacional de Tecnología Industrial, Buenos Aires, Argentina) and G. Krogh (Agro-Técnica Turani S.A., São Paulo, Brazil)

ECLA/BTAO/FAO
PREP CONS/PAPER II/3
March 1966
(Spanish only)

Aspectos económicos de la modernización y expansión de pequeñas plantas de celulosa y papel, con especial énfasis en los casos de Argentina y Brasil.

Prepared by P. Vicien and G. Krogh, Consultants

ECIA/BTAO/FAO
PREP CONS/PAPER III/2
March 1966

Needs of Technological Education and Training for Personnel of the Latin American Pulp and Paper Industry.

Prepared by the Advisory Group

ECLA/BTAO/FAO
PREP CONS/PAPER III/3
March 1966

Financing of Latin America's Pulp and Paper Industry's Development by National Institutions.

Prepared by the Advisory Group

ECLA/BTAO/FAO
PREP CONS/PAPER IV/2
March 1966

Packaging and industrialization in Latin America.

Prepared by the Tuolumne Corporation, San Francisco, California, United States

E/CN.12/755
Annex IV
April 1966

Report of the Review Consultation on Pulp and Paper in Latin America

V. Metal-transforming

V. Metal-transforming industries

E/CN.12/747
14 February 1966
(Spanish only)

La fabricación de maquinarias y equipos industriales en América Latina: IV. Las máquinas-herramientas en la Argentina

CID/SYMP D/C-11^{1/}

Methodological and operational aspects of machine-tool studies in developing countries.

Submitted to the Inter-regional Symposium on the Development of Metalworking Industries in Developing Countries, Moscow, 7 September - 6 October 1966

CID/SYMP D/C-4^{1/}

Criteria and background information for programming the machine-tool industry.

Submitted to the Inter-regional Symposium on the Development of Metalworking Industries in Developing Countries

Provisional report
September 1966
(Spanish only)

La industria mecánica de Colombia

^{1/} These reports were specially prepared for the Inter-regional Symposium on the Development of Metalworking Industries in Developing Countries (Moscow, 7 September - 6 October 1966), and were presented together with the following documents prepared earlier:

La fabricación de maquinarias y equipos industriales en América Latina: IV. Las máquinas-herramientas en la Argentina (E/CN.12/747), 14 February 1966.

The manufacture of industrial machinery and equipment in Latin America: II. The machine-tools industry in Brazil (E/CN.12/633), November 1962.

The metal-transforming industry in Venezuela: an import substitution development programme (E/CN.12/737), October 1965.

Los principales sectores de la industria latinoamericana: problemas y perspectivas. Capítulo V: Las industrias mecánicas (E/CN.12/718/Rev.1), February 1966.

/VI. The

VI. The Textile Industry

- E/CN.12/729
December 1965
(Spanish only) La industria textil en América Latina: X. Venezuela
- E/CN.12/745
February 1966
(Spanish only) La industria textil en América Latina: XI. México
- E/CN.12/746
13 January 1966 The choice of technologies in the Latin American textile industry
- E/CN.12/748
February 1966 Economies of scale in the cotton spinning and weaving industry
- ST/ECLA/Conf.23/L.43
March 1966
(French and Spanish only) L'exportation sur le marché mondial, une perspective pour le développement de l'industrie textile latino-américaine.
Prepared for ECLA by R. Haour, Consultant

VII. General problems relating to the industrial economy

- E/CN.12/716/Rev.1^{2/}
December 1965 The process of industrial development in Latin America
- E/CN.12/716/Rev.1
and Add.1 3/
February 1966
(Spanish only) Los principales sectores de la industria latino-americana: problemas y perspectivas (2 vols.)
- ST/ECLA/Conf.23/L.35^{4/}
March 1966
(Spanish only) El desarrollo industrial de la Argentina.
Submitted by the Government of Argentina

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- 2/ This study, as was indicated in the Joint Programme's report above, was prepared by a special group before the formation of the Programme, but was revised and prepared for publication by the Joint Programme during the period to which this report refers.
- 3/ The revised version of this report will be published in printed form for presentation at the forthcoming International Symposium on Industrial Development.
- 4/ The national reports on Latin American industrial development will be published in their revised versions, in a single volume, for presentation at the International Symposium on Industrial Development.

- ST/ECLA/Conf.23/L.36 O desenvolvimento do Brasil.
18 February 1966 Submitted by the Banco Nacional do Desenvolvimento
(Portuguese only) Econômico do Brasil
- ST/ECLA/Conf.23/L.37/
Rev.1 El desarrollo industrial de Centroamérica.
March 1966 Submitted by the Permanent Secretariat of the
(Spanish only) General Treaty on Central American Economic
Integration
- ST/ECLA/Conf.23/L.17 El desarrollo industrial de Colombia.
January 1966 Submitted by the Government of Colombia,
(Spanish only) Administrative Planning Department
- ST/ECLA/Conf.23/L.63 El desarrollo industrial de Cuba.
March 1966 Submitted by the Government of Cuba
(Spanish only)
- ST/ECLA/Conf.23/L.46 El desarrollo industrial de Chile.
February 1966 Submitted by the Government of Chile
(Spanish only)
- ST/ECLA/Conf.23/L.16 El desarrollo industrial del Ecuador.
January 1966 Submitted by the Government of Ecuador, National
(Spanish only) Planning and Economic Co-ordination Board
- ST/ECLA/Conf.23/L.38 El desarrollo industrial de México.
9 February 1966 Submitted by the Government of Mexico
(Spanish only)
- ST/ECLA/Conf.23/L.51 El desarrollo industrial del Paraguay.
March 1966 Submitted by the Government of Paraguay
(Spanish only)
- ST/ECLA/Conf.23/L.39 El desarrollo industrial del Perú.
7 February 1966 Submitted by the Government of Peru
(Spanish only)
- ST/ECLA/Conf.23/L.50 El desarrollo industrial del Uruguay.
February 1966 Submitted by the Comisión de Inversiones y
(Spanish only) Desarrollo Económico (CIDE)
- ST/ECLA/Conf.23/L.24 El desarrollo industrial de Venezuela.
14 January 1966 Submitted by the Government of Venezuela
(Spanish only)
- ST/ECLA/Conf.23/L.45 Industrial Development of Trinidad and Tobago.
27 January 1966 Submitted by the Government of Trinidad and Tobago

ST/ECLA/Conf.23/L.67
March 1966

Industrial Development in British Guiana.
Submitted by the Guiana Industrial Development
Corporation of British Guiana

E/CN.12/749
March 1966
(Spanish only)

El crédito para financiamiento de la industria de
bienes de capital en algunos países de América Latina

E/CN.12/750
March 1966
(Spanish only)

La pequeña industria en América Latina: un análisis
preliminar

E/CN.12/755
April 1966

Report of the Latin American Symposium on Industrial
Development

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