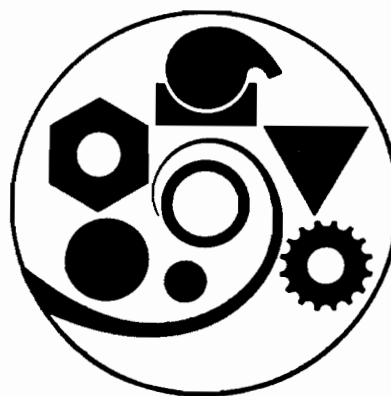


Industrial development

LATIN AMERICA

Report of the Symposium



UNITED NATIONS





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REPORT OF THE SYMPOSIUM ON INDUSTRIAL DEVELOPMENT
IN LATIN AMERICA

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**REPORT
OF THE SYMPOSIUM
ON INDUSTRIAL DEVELOPMENT
IN LATIN AMERICA**

***Santiago, Chile
14 to 25 March, 1966***

**UNITED NATIONS
New York, 1966**



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INTRODUCTION

1. The present report gives a brief account of the discussions and conclusions of the Latin American Symposium on Industrial Development, held in Santiago, Chile, from 14 to 25 March 1966, sponsored jointly by the Economic Commission for Latin America and the United Nations Centre for Industrial Development. The symposium was the last of a series of regional symposia, the preceding meetings having covered Asia, Africa and the Arab countries, and its purpose was to study the existing situation and problems, and future prospects, as regards industrial development, both for the region as a whole and for the individual Latin American countries, and to consider any measures and policies that might accelerate that development in each country, both at the domestic level and with respect to international co-operation.

2. The United Nations General Assembly requested the Secretary-General, in resolution 1940 (XVIII), to initiate consultations with State Members, the specialized agencies, the regional economic commissions and other agencies, on the advisability of holding an international symposium. The symposium was to be preceded, as appropriate, by regional and sub-regional symposia, relating to the problems of industrialization of developing countries (with emphasis on appropriate measures of international co-operation) which would prepare the ground for the international symposium. When the Assembly adopted the resolution, it took

note of the growing desire of the less developed countries to find ways and means to accelerate the pace of their industrialization and to deal more effectively with the specific problems that arose as that process advanced. The international symposium is to be held in 1967.

3. As regards Latin America, the Committee of the Whole of ECLA, at its tenth session in February 1964, adopted resolution 242 (AC.57), welcoming the proposal to hold an international symposium on industrialization, and that resolution was subsequently endorsed by the Economic and Social Council in its resolution 1030 C (XXXVII) and by ECLA, at its eleventh session, in resolution 250 (XI).

4. The present report is in two parts. Part I gives the attendance and organization of the work of the symposium, and the agenda on which the discussions were based. Part II gives an account of the proceedings both of the plenary meetings of the symposium and of the working groups that were formed to study individual industrial sectors.

5. At the end of the report are four annexes containing the inaugural addresses (annex I), the list of participants (annex II), the list of documents (annex III) and the report of the Consultative Meeting on the Development of the Pulp and Paper Industry in Latin America, held at the same time as, and in connexion with, the symposium.

Part I

ORGANIZATION OF THE SYMPOSIUM

A. ATTENDANCE AND ORGANIZATION OF THE WORK

Opening and closing meetings

6. At the inaugural meeting, held on 14 March 1966 at the headquarters of the Economic Commission for Latin America in Santiago, addresses were delivered by Mr. Domingo Santa María, Minister for Economy, Development and Reconstruction of Chile, Mr. José Antonio Mayobre, Executive Secretary of the Economic Commission for Latin America and Mr. Walter Chudson, Deputy Director of the United Nations Centre for Industrial Development.¹

7. At the last plenary meeting, the symposium adopted the report presented by the Rapporteur Mr. Antonio Ledesma, Chairman of the delegation of Venezuela.

Membership and attendance

8. The Symposium was attended by 86 representatives of the following States members of the Commission: Argentina, Brazil, Canada, Chile, Colombia, Costa Rica, Cuba, Ecuador, France, Guatemala, Honduras, Mexico, Netherlands, Panama, Paraguay, Peru, Trinidad and Tobago, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay and Venezuela.

9. Also present were 18 observers accredited by the Governments of the following countries: Belgium, Czechoslovakia, Japan, Poland, Romania, Spain, Sweden, Union of Soviet Socialist Republics and Yugoslavia. Moreover, two States members of the Commission, Bolivia and Colombia, sent observers.

10. The following United Nations agencies were represented by 20 observers: International Labour Organisation (ILO), Food and Agriculture Organization of the United Nations (FAO), United Nations Educational, Scientific and Cultural Organization (UNESCO), World Health Organization (WHO), International Bank for Reconstruction and Development (IBRD), International Monetary Fund (IMF), United Nations Development Programme, Latin American Institute for Economic and Social Planning and the International Atomic Energy Agency (IAEA).

11. Other international organizations were represented by 11 observers. The names of the participants in the Symposium are listed in annex II to this report.

¹ The complete texts of the three speeches are given in annex I to the present report.

Election of officers

12. At the first plenary meeting of the Symposium the following officers were elected:

Chairman: Mr. Salvador Lluch (Chile)

First Vice-Chairman: Mr. Hélio Schlittler (Brazil)

Second Vice-Chairman: Mr. Rigoberto Navarro (Costa Rica)

Rapporteur: Mr. Antonio Ledesma (Venezuela)

13. Mr. Nuno Fidelino de Figueiredo, Director, Joint ECLA/INST/IDB Programme on the Integration of Industrial Development, acted as Director of the Symposium. The following acted as technical secretaries in respect of the different agenda items dealt with in plenary: Mr. Max Nollf, Mr. Ricardo García, Mr. Joaquín Izcue, Mr. Germán Seijas-Román, Mr. Gonzalo García, Mr. Giorgio Gamberini and Mr. Bruno Leuschner.

Working groups

14. At the meeting of chairmen of delegations held during the morning of Wednesday, 16 March, it was agreed to set up two working groups called A and B to consider section II of the agenda "Present situation, problems and prospects of the main industrial sectors". Group A dealt with the items on the agenda relating to the basic metals industries (steel and aluminium) and the metal-transforming industry, while Group B studied the chemical and textile industries. The officers of each group consisted of a discussion leader, elected by the representatives, and of technical secretaries appointed by the secretariat. The officers of the various groups are listed as follows:

GROUP A

Basic metals industries (Steel and aluminium)

Discussion leader: Mr. Ezio Távora dos Santos (Brazil)

Technical secretaries: Mr. Bruno Leuschner (ECLA),
Mr. Armando P. P. Martijena (ECLA)

Metal-transforming industry

Discussion leader: Mr. Tulio Balzo (Uruguay)

Technical secretary: Mr. Roberto Matthews (ECLA)

GROUP B

Chemical industry

Discussion leader: Mr. Santos Amaro Domínguez (México)

Technical secretary: Mr. Roberto Petitpas (ECLA)

Textile industry

Discussion leader: Mr. Emilio Ramírez (Paraguay)

Technical secretary: Mr. Marco Pollner (ECLA)

15. A group on pulp and paper, which later became the Consultative Meeting on the Development of the Pulp and Paper Industry, also met. The results of the work of the group and the Consultative Meeting are set out in annex IV. As from 21 March the Consultative Meeting continued to meet separately at the Universidad Técnica del Estado, in the Quinta Normal area of Santiago.

16. At its first meeting, the following officers were elected to preside over the debates:

Chairman: Mr. Jorge Catepillán (Chile)

Vice-Chairman: Mr. Arturo Tangarife (Colombia)

Rapporteur: Mr. José Brustia (Argentina)

Technical secretaries: Mr. Sergio Salcedo (ECLA/BTAO), Mr. Seppo Räisänen (FAO), Mr. Erik Van den Ent (FAO)

Secretariat

17. The Symposium secretariat consisted of the following representatives of the sponsoring organizations:

Nuno F. de Figueiredo, Director, Joint ECLA/INST./IDB Programme on the Integration of Industrial Development and Director of the Symposium

Marco Pollner, Deputy Director, Joint ECLA/INST./IDB Programme on the Integration of Industrial Development

Bruno Leuschner, Regional Adviser on Applied Technological Research and Chief, Basic Metal Industries Unit

Max Nollf, Chief, Industrial Economics Unit

Roberto Matthews, Chief, Metal-Transforming Industries Unit

Roberto Petitpas, Chief, Chemical Industries Unit

Seppo Räisänen, Chief, Latin American Forest Industries Advisory Group

Ramón Suárez, Basic Metal Industries Unit

Ricardo García, Industrial Economics Unit

Gonzalo García, Industrial Economics Unit

Joaquín M. Izcué, Industrial Economics Unit

Germán Seijas, Industrial Economics Unit

Giorgio Gamberini, Textile Industries Unit

Sergio Salcedo, Joint ECLA/FAO/BTAO Pulp and Paper Advisory Group

Armando P. P. Martijena, Consultant to the secretariat

United Nations Centre for Industrial Development

Walter A. Chudson, Deputy Director, Division of Technology

Alfredo Pflücker, Principal Adviser

B. AGENDA

18. At its first plenary session, the Symposium adopted the following agenda:²

I. *Evaluation of industrialization in Latin America, and future outlook*

1. Latin American industry: past evolution and present characteristics
2. Industrialization policy and future prospects
3. Industrial development programming: institutions and instruments

II. *Present situation, problems and prospects of the main industrial sectors*

1. Basic metals industry
2. Chemical industry
3. Pulp and paper industry
4. Metal-transforming industry
5. Textile industry

III. *Problems relating to financing, exports and small industry*

1. Credit for industrial expansion
2. Exports of manufactures to the rest of the world
3. The small enterprise in Latin American industrial development

IV. *Problems relating to the transfer of technical know-how, applied technological research and technical assistance*

1. The transfer of technical know-how from abroad and the adaptation of processes and machinery to Latin American conditions
2. Technological research of industrial application
3. Technical assistance for industrial development

V. *The international symposium on industrial development (1967) and industrial development in Latin America*

² The corresponding documents are listed in annex III.

Part II

ACCOUNT OF PROCEEDINGS³

A. EVALUATION OF INDUSTRIALIZATION IN LATIN AMERICA AND FUTURE OUTLOOK⁴

Latin American industry: past evolution and present characteristics

19. In analysing the industrial development of the Latin American countries it was noted that the process was taking place against a background of rapid population growth, swift urbanization, marked inequality of income distribution, slow growth in the agricultural sector and violent fluctuations in foreign trade. In addition, industrialization lacked proper planning.

20. Latin America's industrialization consisted of a number of stages, the different countries of the region having progressed through them to varying degrees. The first stage, which might be described as the pre-factory stage, had been left behind by most of the countries of the region. The second stage represented the development of the activities now commonly known as the traditional industries, which was accompanied by a sharp decline in the number employed in cottage industries and the appearance of large centres of factory employment, even though there might be a simultaneous expansion in artisan employment. The third stage was associated with the development of the basic industries and the production of simple machinery; at that stage there was a greater need for technological know-how and a higher capital intensity per unit of output or of employment.

21. One of the Latin American countries that was reaching that final stage was Brazil, which combined, among other features, such factors as a large market, an abundance of natural resources, a dynamic entrepreneurial class, systematic programmes for technical and other training, and certain very effective programmes of direct promotion by the State. The situation was much the same in Argentina and Mexico.

22. In connexion with the past evolution of industrialization, the participants pointed out that an automatic repetition of the industrial evolution of the most developed countries of the region should not be looked for in the remaining countries, which were still at earlier stages. Thus, for example, Venezuela was engaged at the same time in trying to remedy the relative backwardness of the traditional industries and to promote new industrial activities characteristic of much more advanced stages of the industrialization process, as

demonstrated by the project for the development of the Guayana area and the expansion of the petrochemical industries.

23. It was stated that Venezuela was in a special position compared with the other Latin American countries, with respect to its industrialization process. Firstly, the process was begun very late, and only acquired momentum in the fifties, when Venezuela had the highest growth rates in the region. Secondly, Venezuelan industry was highly capital-intensive, as a result of the abundance of foreign exchange available for the purchase of capital goods and intermediate products. Thirdly, industrial development had taken place within the framework of a national planning system. Fourthly, Venezuela had a structural type of unemployment. And lastly, the country was trying to change within a single generation (twenty to thirty years) a petroleum economy that was highly vulnerable to external factors into a modern industrial and agricultural economy.

24. Although the industrial development process in Latin America varied considerably from country to country, as a result of special conditions or historical circumstances, it appeared in every case to be greatly influenced by the need for import substitution. That trend had already begun in some countries even before the Depression of the thirties, and subsequently became an unavoidable necessity and the main stimulus to industrial development.

25. Nevertheless, in recent years import substitution had showed signs of weakening in the traditional industries sector, and in some countries also in the industries producing intermediate and capital goods; thus the stimulating effect of import substitution in earlier decades appeared to be disappearing, and new incentives had to be sought for future development. That process, of course, had differed in degree and in kind with the individual circumstances of each country, which in Latin America covered a very wide range.

26. An account was given of experiences in such countries as Brazil, Argentina, Mexico and Chile, where import substitution for consumer goods seemed virtually to have come to an end. In that connexion, an analysis of the situation in Brazil was of special interest, because Brazil was one of the countries where the import substitution process had been taken furthest. The representative of Brazil stated that although the development of the industrial sector in his country was linked to import substitution, that process had been completed in the fifties in the durable consumer goods sector, and had been followed by stagnation in 1963 and 1964. Certain defects in economic development policy had led to a series of imbalances. Firstly, the industrial sector had created certain pressures in the

³ The representative of Cuba, for lack of adequate elements of judgement, reserved his position with respect to those parts of the report which, referring to specific countries, were presented as unanimous conclusions of the Symposium.

⁴ See annex III, which lists the documents that served as the basis for the discussion.

agricultural sector, and that had led to certain bottlenecks in the manufacturing sector. The immediate effect of the policy defects had been imbalances in regional development, which were followed by financial and monetary imbalances, further aggravated by inflation, especially in 1963.

27. Unplanned industrial development, and import substitution that was not always carried out on the basis of sound selective criteria, had been bolstered in Latin America by tariff protection. That had led to the existence of inefficient enterprises, inevitably leading to some degree of monopoly. It was no exaggeration to speak of over-investment in certain industrial branches, in the sense that many entrepreneurs, who had not chosen their machinery and equipment wisely, tended to use highly capital-intensive technologies. The tariffs preventing the entry of manufactured goods from abroad had permitted imports of machinery and equipment for industry without any criterion of selection related to the conditions in the country concerned in terms of the relative prices of capital and labour, etc. That had led in many cases to high costs, further increased because the installed capacity could not be fully utilized.

28. With respect to improving the balance of payments, contradictory situations had arisen. On the one hand, import substitution for manufactured end goods involved a saving in foreign exchange, but the imports of inputs and machinery and parts had offset that saving, and led to an excessively rigid import structure through limiting imports mainly to raw materials, intermediate goods, fuels and capital goods.

29. The unsatisfactory results of the import substitution process could be summed up as follows:

(a) *Vulnerability*. Restrictions on imports of finished products, and exemptions for the corresponding imports of raw materials, intermediate products and machinery required, had led to the industry thus created being highly vulnerable, and in periods of acute balance-of-payments difficulties, when imports had to be further restricted, the industries concerned might find themselves without the supplies on which their continued operation depended, and the end result would be a generally unforeseen damaging effect on the balance of payments.

(b) *Undesirable substitution*. The restriction of imports of luxury items, without any corresponding domestic policy of taxation or physical controls, often led to an excessive production of such goods in the country. Thus the result was to achieve neither the social aims implicit in reducing luxury consumption, nor a favourable effect on the balance of payments, since raw materials and intermediate goods had to be imported for the production of those items.

(c) *Undesirable diversification of production*. The restriction of imports of practically every type of finished product, with the sole exception in some cases of capital goods, might result in an excessive diversification of industrial production, covering an unnecessarily wide range of activities, including many items which the country was not well equipped to produce (in terms of resources, market size, and level of technology).

The outcome was the production of an undesirable wide range of products and of models by individual industrial establishments.

(d) *Monopoly*. Diversification, in turn, tended to create situations of limited competition or even virtual monopoly, since the new activities in that extensive type of development were undertaken by only one enterprise, or at least a very small number, for each individual product. That situation contrasted with the intensive type of development, in which enterprises directed their investment rather towards the improvement and higher capitalization of the existing plants, thus permitting a higher degree of specialization. Diversification of production and the weakening of competition that it entailed was not, of course, necessarily associated solely with the establishment of new enterprises, since the production of a series of new products by existing enterprises had the same result.

30. The case of Australia was referred to during the discussions as a contrast to the Latin American model of import substitution. Australia had transformed itself from a country exporting raw materials to an exporter of manufactured goods. To achieve that result it had had to build up an efficient industrial base that enabled it to place its products on the world markets at competitive prices. For that purpose tariff instruments had played a decisive role, by providing a purely temporary protection strictly confined to new production lines.

31. Another point mentioned was the inefficient use of industrial capital in the region, and the high percentage of idle installed capacity. The formation of new fixed industrial capital had been slow, because of the general shortage of financial resources, and because the special conditions that existed in most Latin American countries required a larger working capital than in the more developed countries, and also, in some cases, because enterprises used working capital for non-industrial purposes. Those distortions had been most marked in the countries that had had to deal with sharp inflation, and had sometimes led to disinvestment of enterprises, thus preventing the timely renewal of fixed capital assets.

32. Several representatives commented on the high costs and prices of the region's manufactured products, due not only to the circumstances referred to above, but also to problems of scale of production, the use of technologies that were not always the most suitable, and the defects in infrastructure, especially transport and energy. In some cases the high price of raw materials, resulting from the low level of the production of those materials in terms of technology, scale of production and location, was mainly to blame for the high costs of manufactured products. The high costs and prices led, in turn, to a relatively low level of consumption of manufactures, and to great difficulty in competing in foreign markets.

33. Lastly, it was noted that the contribution of industrialization to the creation of new sources of employment had been very limited in relation to the rapid growth of the labour force, partly because of the

slow growth of the industrial sector, and partly because of the adoption of production techniques that were not always in line with the facts of life in the Latin American countries.

34. The representatives of Argentina, Brazil and Mexico referred to the problem of industrial concentration, which had led to sharp regional imbalances. In Mexico the highest industrial concentration was in the Valle de México, in the region of Mexico City; in Brazil it was mainly around Rio de Janeiro and São Paulo, and in Argentina mainly in the Province of Buenos Aires.

35. The centralization of industrial development in a particular zone had led to external economies (in terms of energy, skilled labour, transport, etc.) that inevitably attracted other new enterprises, thus reinforcing the process of concentration.

36. For want of an industrial planning policy, the piecemeal measures of regional promotion designed to encourage the establishment of new industries in non-industrialized areas were unable to offset the advantages of the external economies offered by the metropolitan urban areas. The drawbacks of that situation began to be remedied through government action to foment regional development. Although Mexico, for instance, had no over-all programme of industrial development, the Government was carrying out infrastructural works in order to create the necessary conditions for industry to develop in a number of areas. At the same time, stress was being laid on education and technical training in several Mexican states, as witnessed by the establishment of technological institutes in certain provinces for training industrial manpower at various levels. Plans such as that of the Papaloapán River Basin Commission, the Balsas River, and Lerma-Chapala-Santiago, and for developing the towns on the border with the United States were all part of the move towards industrial decentralization.

37. In Brazil, the striking development of the São Paulo-Rio de Janeiro axis contrasted with that of other regions of the country, such as the Nordeste, for which a special Government body had to be set up, namely, the Nordeste Economic Development Agency (Superintendencia do Desenvolvimento Economico do Nordeste — SUDENE). Regional development bodies had also been established in other areas, notably, the States of Paraná and Minas Gerais.

38. There was general agreement among the participants that progress towards industrial decentralization was still too slow, and that industrial development in Latin America was wanting in many respects although the sector currently provided about 24 per cent of the gross regional product and employed not less than 14 per cent of the active population. It was pointed out, however, that the industrialization process in Latin America, although one of the main factors in the general development of the economy, had failed to acquire the strong dynamic impetus that characterized it in other regions of the world.

39. In their extensive analysis of the past evolution and present characteristics of the industrialization pro-

cess in Latin America, the participants stressed certain points in order to illustrate particular situations or to underline the importance of some factors that had played a vital part in the process.

40. For instance, the representative of Cuba stated that foreign capital had imposed a single-crop economy on his country and at the same time, had been largely responsible for blocking, through preferential trade agreements, the development of a national manufacturing industry. As a result of the crisis in the sugar industry, a process of import substitution had been attempted but had failed because of the political and economic pressures to which the country had been subjected. In the fifties some tax and credit facilities had been granted for the purpose of promoting the development of industries other than sugar. The results achieved had been meagre and had reflected a high degree of inefficiency in the distribution of resources. The vulnerability of the domestic economy, deriving from its increasing dependence on imports of raw materials and capital goods, had been enhanced by the downward trend of prices for primary export commodities. He concluded by pointing out that the far-reaching structural changes effected by the present Revolutionary Government, the socialization of the means of production and the establishment of trade relations with the socialist countries, with under-developed countries and even with major capitalist countries, had given a sharp impetus to industrial development.

41. Paraguay was also a special case in which the import substitution policy was limited by the size of the domestic market as a result of the small population and low income levels. Hence the deliberately outward-directed strategy adopted by the Government in its economic and social development plan, the effect of which was to spread to other production sectors. The delegation of Paraguay stressed the fact that the economic and monetary depression in bordering countries and the instability of world prices, combined with the changes in consumers' preferences for basic manufactured products, had been factors restricting domestic production and exports, since they had given rise to unforeseen competition deriving from circumstances connected with exchange and border traffic that were difficult to control.

42. One of the barriers to industrial development in some of the countries of the region was the small scale of their markets. Trinidad and Tobago were a case in point. With a population of under a million, there was no possibility of creating a market for industrial goods. At the present time, the dynamic factor in its economy was petroleum, and some petrochemical production lines had been developed. The representative of Trinidad and Tobago stated that co-operation with the other countries of the region would be welcome, as being in the best interests of his country's economic development.

43. The representative of Mexico explained that his country's political stability and sound institutional framework had been vital factors in its industrial development. Succeeding Governments had shown a continuity of policy in effectively promoting development through reforms and legislation.

44. The representative of FAO indicated that agricultural development required a strong industrial foundation (machinery, equipment, fertilizers, pesticides, etc.), and that the structural changes already taking place or that would be produced in future by agrarian reform in some of the countries would lead to the expansion of the market for manufactured goods by raising the income levels of the rural classes. Hence, it was necessary to supplement the industrialization plans by agricultural development programmes.

45. In general, the different statements endorsed the conclusions set forth in the basic secretariat document *The process of industrial development in Latin America* (ST/ECLA/Conf.23/L.2). Stress was laid on the valuable contribution made by that study to the analysis of the industrialization process in bringing out such aspects as the slowing down of import substitution activities, regional imbalances, the choice of technologies for industry, the need to concentrate programmes for future development and the advantages of regional integration.

46. Attention was also drawn to the important contribution made by the fourteen papers presented by the countries of the region, which the secretariat had been requested to revise and expand so that they might serve as a basis for further research in the industrial field, with particular reference to industrial policy.

47. There was general agreement on the need for strengthening and rechannelling the industrialization effort in the region as a means of accelerating economic development as a whole and of improving the living conditions of the Latin American peoples.

Industrialization policy and future prospects

48. In reviewing the process of industrialization in the Latin American countries, a number of participants pointed out that it was not supported by a co-ordinated and continuous policy aimed at directing it towards the goals established. Instead it had had to rely on a number of policy measures of varying effectiveness in the industrial sector that had been adopted on the basis of criteria that differed from one country and period to another.

49. Among the measures in question, those protecting the industry against competition from abroad merited special attention because of the extent of their influence. Although often superimposed on provisions or instruments designed for other purposes such as the collection of more tax revenue or the stabilization of the balance of payments, they had played an important part in encouraging established industries to expand, had made for the creation of a wide variety of new industries and had had favourable effect on employment and the balance of payments.

50. The protectionist measures had also had adverse repercussions. By constantly maintaining high levels of protection without adapting them to the changes in the economic development process, they had led to conditions in the smaller markets in which domestic competition was either limited or non-existent, and to

a lack of incentives to increase production efficiency. As a result, domestic market prices often soared to exaggerated heights and the goods manufactured were of low quality.

51. For all those reasons the protectionist machinery had to be overhauled and, in particular, made more flexible so that it would serve as an effective instrument, in some cases, for stimulating the creation of new industries, and, in others, for increasing productivity in existing plants.

52. In relation to the same subject, the provisions designed to prevent the emergence of private monopolies in industry and to control domestic prices were examined. The participants recognized the need to prevent the formation of monopolistic conditions in industry, and suggested that external competition might be used to regulate domestic prices through the adjustment of tariff protection levels for certain products. However, the representative of Chile pointed out that recourse to the tariff mechanism for such purposes might have repercussions on the balance of payments. The representative of Mexico explained that good results had been obtained in his country with a system of price controls that did not permit an increase of more than 15 per cent over the original price of the products involved.

53. Other industrial policy measures mentioned were the provisions for industrial promotion based on tax measures and generally designed to encourage new investment or reinvestment. In some countries, specific industrial development legislation had been passed, but in most of them there were merely a number of piecemeal provisions mainly based on income tax or customs exemptions. Some measures were of a general nature, with a residual effect on industry deriving from broader objectives, or were incomplete — although susceptible of specific orientation — because they related to specific areas or branches of industry.

54. The effect of the tax measures adopted seems to have varied from country to country. For instance, the representative of Mexico stated that tax and credit incentives had yielded good results in his country, although in some cases they had caused distortions prejudicial to industrial development. In the reinvestment of profits, the development act for new and essential industries had produced similar results. The representative of Colombia, on the other hand, said that tax exemptions had not had much effect there, possibly because of the low levels of income tax. The representative of Costa Rica added that the exemptions granted under the Industrial Development Act passed in his country had been applied indiscriminately, their effectiveness having consequently been reduced.

55. The policy with respect to foreign industrial enterprises was not very different from that applied to foreign investors in other sectors of activity. Industrial investment — as distinct from investment in extractive activities and primary processing — had been concentrated in the countries with the largest markets. Foreign industrial enterprises had invested, in many cases, in order to retain markets which they had formerly supplied

from abroad and which they might otherwise have lost as a result of the protectionist policy adopted by the Latin American countries. Accordingly, their activities had been centred on supplying the domestic markets, and only in a few cases had they been directed towards exports.

56. Both the IBRD observer and the representative of the United States indicated the favourable effects which the action of foreign enterprises could have in the developing countries. The representative of Cuba stated that foreign investment constituted a means of flight to other countries of the foreign exchange generated in Latin America. The representative of Venezuela said that in his country foreign capital was channelled into activities which were not adequately covered by domestic capital, public or private. The representative of Mexico explained that, according to the law, foreign industrial enterprises in his country had considerable freedom to operate, except with respect to items of particular importance to the nation, such as the exploiting and beneficiating of mineral ores, in which Mexican capital must represent at least 51 per cent of the total, and the petrochemical industry, which must be 100 per cent State-owned in the primary stage and 60 per cent Mexican-owned in the secondary stage. He mentioned, however, that the aim was to direct foreign investment into the types of production for which Mexico lacked the necessary techniques, and thus to prevent it from competing with domestic capital in the sectors in which Mexico possessed the necessary technology. In every case the Government invited foreign capital to associate itself—preferably on a minority basis—with Mexican capital. At the same time, attention was drawn to the need to standardize the incentives offered to foreign capital, in order to avoid having the Latin American countries compete for it.

57. One of the subjects commanding particular attention was the experience of some countries in regard to direct promotion by the State. This had consisted of providing financial support to private initiatives or setting up public enterprises in order to maintain them under State control or subsequently to transfer them to the private sector. The participants described the direct promotional methods used by their Governments, which reflected marked discrepancies between one country and another and between the various procedures adopted. They had often been promoted by general economic and social development considerations, or were directed towards basic industrial activities which entailed a relatively high investment and considerable risk.

58. Representatives of some of the smaller countries said that the lack of financing and organizational capacity in the private sector of the countries concerned appeared to indicate that direct promotion of industry by the State might yield favourable results. In that respect, the representative of Venezuela reported that one of the characteristics of State promotion in his country was the tendency towards a democratization of industrial property, special opportunities being given to the medium and small-scale producers, particularly

in regard to financing. Similarly, the representative of Mexico expressed the view that the continuing and flexible nature of the procedures for State promotion had proved important factors in Mexico's industrial development.

59. In discussing the future prospects of Latin American industry, as part of the general economic development strategy for the region, the participants emphasized the weakening of the import substitution process. Although substitution possibilities were not yet completely exhausted and there was still a wide range of products which could be produced locally in several countries, the size of the domestic markets constituted a serious limitation, above all in relation to costs.

60. It was nevertheless considered that the import substitution process could continue in respect of items from outside the region, which could be replaced by items produced locally at scales of production that would take into account the market of all the Latin American countries as a whole. That would mean a considerable increase in trade in manufactures among the countries of the region and, therefore, a fresh stimulus to industrial development. Continuation of the import substitution process along those new lines would require the gradual economic integration of all the Latin American countries.

61. In addition, some representatives emphasized the need to increase and diversify exports of manufactures to other parts of the world, a procedure which would also require large scales of production and advanced techniques. The representative of Brazil maintained that that would be possible only in countries where there was already a well-established industrial base, while the representative of Chile asserted that such exports should relate to manufactured products for which special comparative advantages existed.

62. In relation to the possible development of exports, the representative of the United States recalled the resolution adopted by the OAS Conference at Rio de Janeiro on the establishment of an organization to promote Latin American exports. The representative of Chile mentioned the need to institute a common trade policy *vis-à-vis* third countries, and the Cuban delegation held that the markets of the socialist countries opened up new horizons for Latin American industry in trade of mutual benefit to the parties concerned.

63. The economic integration necessary in order to direct industry along these new channels would involve additional problems. In the first place, the changes that should be effected in the structure of industry in each country would have to be viewed as part of a broader over-all development process. In that respect, the representative of Argentina indicated the need to take into account social and political factors as well, in order to permit all sectors of society alike to enjoy the material and cultural benefits generated by the process. He agreed with several participants in considering that the industrial development process should be very closely linked to the reform of agrarian structures, the progressive redistribution of income, the removal of bottlenecks in transport and energy, and better manpower train-

ing. Any time lag between the changes in the structure of production and the corresponding social and political reforms would work against the attainment of the goals pursued and might aggravate the conditions of stagnation it was now attempted to solve.

64. According to the representative of Cuba, an industrial development policy proper to the Latin American countries must necessarily be allied to a genuine agrarian reform, an educational policy that would permit the access of all sectors to education, the selection of up-to-date and efficient techniques, State control of financial resources and foreign trade, and executive planning based on society's ownership of the means of production.

65. Moreover, it was generally agreed that the achievement of economic integration required, *inter alia*, that the progress made in industrial development in the various countries should be co-ordinated. In that respect, some representatives deemed it advisable to co-ordinate the investment programmes. The representative of Venezuela proposed a number of measures aimed at achieving progress in integration through the establishment of a "Community of basic industries" which would permit compensatory arrangements among a group of sectors and could turn to account the work done by the institutions operating in the field of integration. To achieve a stage of development that would satisfy the hopes of all the Latin American countries might prove a very difficult matter if integration or planned development were limited to a single industrial sector, but would afford far broader possibilities if satisfactory forms of compensatory arrangements were sought within a group of sectors, e.g., steel, aluminium, chemicals and petrochemical products, pulp and paper, and heavy metal transforming. The delegation of Chile endorsed those views.

66. The representative of Venezuela suggested, in addition, the establishment of multinational enterprises as a means of distributing the benefits of integration more equitably. The participants agreed that those views should be carefully studied by the secretariat.

67. The representative of Brazil said that economic integration was clearly required at the present stage of Latin America's industrial development and that the soundness of the concept was reflected in the broad and almost unanimous support given by the countries of the region to the two integration programmes in operation: ALALC and SIECA. Thus, the discussion of practical proposals in that connexion had its appropriate setting in the two organizations mentioned.

68. As an illustration of the integration process on a sub-regional scale, the representative of SIECA and those of Costa Rica, Guatemala and Honduras described the progress made in the integration of Central America, which had been based essentially on free intra-area trade and the uniform import tariff. The General Treaty for Central American Economic Integration which had come into force in 1961, already possessed a number of agencies and instruments for

bringing the free-trade area into full operation. The various agreements relating to industrial development included that on the Régime for Central American Integration Industries, the Protocol to that Agreement (which contained the Special System for the Promotion of Productive Activities) and the Central American Agreement on Fiscal Incentives to Industrial Development. There were agencies responsible for various functions in relation to industrial development. Thus, the Central American Bank for Economic Integration (BCIE) was concerned with problems of promotion and financing at the regional level, the Central American Research Institute for Industry (ICAITI) adapted existing techniques to Latin American conditions, did research work and provided technical services to Governments and to private enterprise, the Joint Central American Programming Mission provided technical assistance to Governments and laid the bases for programming at the regional level and, lastly, SIECA itself, the technical secretariat and administration of Central American economic integration, saw to it that existing treaties and agreements were complied with.

69. Several representatives stressed the need to ensure a satisfactory distribution of integration benefits to all the participating countries, and to forestall the existence in the region of a relationship between the major countries and the medium-sized and small countries such as that which still existed between the developed countries and the Latin American countries in general. The representative of Uruguay pointed out that consideration should be given to the formulation of a new and vigorous policy of support to the relatively less developed countries by means of sharply different treatment which would grant them advantages in the regional siting of industries, and technical, financial and other assistance conducive to their harmonious growth. The representative of Guatemala and the representative of SIECA said that the relatively more developed Latin American countries should support and promote basic projects leading to the installation of major, highly-productive industries in Central America, an area which offered comparative advantages and possibilities of specialization. Those industries would offer theirs to the other Latin American markets on preferential terms compared with in parts from the rest of the world. Such a policy should be applied to the other small, little developed countries within the area. The representative of Argentina held that measures should be adopted to prevent integration benefits from being enjoyed outside the region and the creation or aggravation of monopolistic conditions which adversely affected the price system.

70. The representative of Trinidad and Tobago expressed his country's interest in taking part in the integration process, as did the representative of the Netherlands in respect of Surinam and the Netherlands Antilles.

71. Lastly, the participants agreed to recommend that work should proceed on the studies required for speedier and more effective progress in the industrial development and integration of Latin America.

Industrial programming: institutions and instruments

72. The complexity of the industrial development process had underlined the need for the element of rationality that planning provided, if drastic structural changes were to be introduced and the rate of growth accelerated. In view of the difficulties and obstacles that were hampering the industrialization process — such as the dwindling of import substitution possibilities for the traditional industries in some countries, and even, in others, for those manufacturing intermediate products and capital goods; the high costs and prices prevailing; the shortage of capital; and the limited size of the market for manufactured goods —, it seemed advisable for Latin America to undertake planned action whereby they could be surmounted within reasonable periods of time and at reasonable cost to society.

73. In recent years, most of the Latin American countries had realized that fact, and had made progress both in over-all and in industrial planning. Planning systems had been envisaged which embodied all the machinery necessary to ensure that the population, private enterprise, and different areas took their proper part in the formulation of national or sectoral plans, and that their aspirations were borne in mind within the framework of the requirements determined by basic conceptions of over-all development. Such an approach implied the creation of a two-way planning system, which in one direction would take up and channel the aims and wishes of the various sectors of the economy, and, in the other, would guide their activities in the light of the whole country's economic and social development interests. Furthermore, it meant that machinery had to be established to facilitate or ensure the attainment of the targets set up in the plans and programmes and the proper application of the policies which the latter incorporated. In other words, a planning system called for an efficient administrative organization capable of promoting, at all levels, the work involved both in the formulation of the plans and in their execution and official supervision.

74. It was pointed out in the course of the discussion that industrial planning should be conceived in integrated terms, or, in other words, should cover the whole of the manufacturing sector, as part of an over-all planning process. If it embraced only specific industries, favourable results might perhaps be achieved, but failure to give due consideration to the general determining and restricting factors operative in the economic and social environment would entail the risk of handicapping the over-all development of the country concerned. It was fully recognized, however, that significant contributions had been made by the programming of certain branches of industry in some of the Latin American countries in the past, when the prerequisites for over-all programming had not yet existed in the region.

75. Again, industrial planning should not overlook the fact that the brunt of the material responsibility for investment and manufacturing production in almost all the Latin American countries was borne by private enterprise. One of the problems arising in that con-

nexion, was the question of the instruments of over-all economic policy that would most effectively incite the private investor to relate his decisions to specific social targets, and encourage him to adopt the production techniques and processes that were most appropriate from the standpoint of the community as a whole, under national or regional programmes.

76. Broadly speaking, the planning process had begun in Latin America with the formulation of plans for specific basic sectors, especially branches of industry, during the forties. Both for the formulation and for the implementation of the programmes, agencies had been established whose action was restricted to specific fields.

77. By 1965, medium- and long-term industrial development plans of a general character had been drawn up, within the framework of an over-all model, in most of the Latin American countries. Except in Cuba's case, the plans in question conformed to the basic principles of the Charter of Punta del Este and to the technique of analysis and projections disseminated by ECLA. Hardly any of them laid down measures of economic and social policy in sufficient detail. The specific projects included in investment plans were few and far between, and only in a limited number of instances had any significant regional planning been attempted, nor were the possibilities opened up by the economic integration of Latin America taken into account. In Cuba planning was based on society's ownership of the means of production and State Control of foreign trade. The plan, which was executive in character, represented the implementation of the Government's economic policy. The national planning system included the over-all entities such as the Central Planning Board and the Ministry of Finance, as well as the sectoral agencies, these being the planning units in the different Ministries and consolidated organs and enterprises. The plans which were over the short, medium and long term, covered the production, investment, financial, supply and labour aspects of the various sectors.

78. The increasing importance that was being attached to planning by the Latin American countries was illustrated in the fact that one of them (Venezuela) had incorporated a provision in the text of its Constitution which required the President of the Republic to outline, in his annual message to Congress, "the general features of the National Economic and Social Development Plan". That was carrying matters even farther than had been suggested in the Charter of Punta del Este, in which the Latin American Governments recognized that planning was necessary for the channelling of economic and social development.

79. Several delegations compared notes on the experience of their countries. It was clear that although industrial development plans shared certain essential features in common, the nature and even the significance of their institutional and administrative aspects differed from one Latin American country to another. While in some substantial progress had been made in the establishment of a planning system, in others only piecemeal action was being taken in that field. The level and organization of the planning unit also varied widely.

In some instances, there were considerable dissimilarities in the machinery for the execution of the plans, determined by the particular conditions prevailing in the countries concerned. The same was true of regional programming at the national level.

80. In the course of the general discussion, stress was laid on two points, one relating to the participation of the private sector in industrial planning and the other to the links that should exist between the agencies that formulated industrial programmes, those that promoted or executed them and those that manipulated the various instruments of industrial policy.

81. In the first connexion, attention was drawn to Mexico's export and import boards in which the private sector played an active part. In Colombia, private enterprise participated in industrial planning through the Private-Sector Development Committee (Comité Privado de Desarrollo). But it was pointed out that in several countries private enterprise was still relatively weak, a circumstance which, in many cases, had induced the public sector to assume a more energetic role in the planning process.

82. Another subject mooted was the question of how far the private sector was satisfactorily organized to play an efficient part in national planning, since only when the entrepreneurial sector established its targets in accordance with over-all national development requirements could the optimum participation of the private sector be secured.

83. With regard to the level at which the intervention of the private sector should take place, it was considered that the most effective would be that of sectoral and regional planning. An illustrative example was afforded by what had happened in Venezuela, where agencies called "programming groups" had been established at the sectoral level to undertake the programming of development in the corresponding branches of industry, with the co-operation of experts from both the private and the public sector. Mention was also made of the results achieved in Brazil through the "executive groups", which were responsible for channelling the activities of the private sector in the development of certain branches of industry; a case in point was the part played by the Executive Group for the Motor-Vehicle Industry (Grupo Executivo da Industria Automobilistica — GEIA) in the growth of that dynamic sector. In contrast, the view was expressed that the participation of the private sector through economic councils — the system most commonly in use — had not been successful, on account of the advisory nature of those agencies. The representative of Honduras said that the Political Constitution of his country contained a clause on the need for planning, the implementation of which had recently led to the Establishment of the Higher Economic Planning Board, responsible for the over-all planning of the Country's economic development. He also mentioned the participation of the private sector in the Industrial Development Programme for 1965/69 through annual inventories of projects and Co-ordination Committees at the level of industrial branches.

84. With respect to the liaison that should be maintained between the agencies formulating industrial programmes, those promoting or executing them and those handling the various instruments of industrial policy, there was a consensus of opinion on the need to seek appropriate machinery whereby such agencies could be efficiently co-ordinated, with a view to removing the stumbling-blocks currently existing in the industrial field.

85. The delegation of Brazil reminded the meeting that in the past there had been no co-ordination among some of the agencies operating in the field of industrial development. An endeavour was being made to remedy that state of affairs by taking advantage of the experience acquired in the Government's economic development programme, in order to establish the bases for a genuine system of economic planning and co-ordination.

86. The representative of Mexico observed that while economic and social planning had not been fully centralized in his country, several government departments and commissions had planned sectoral and regional development. The Office of the President of the Republic, with statutory responsibility for planning and the Ministry of Finance and Public Credit, had recently set up Inter-Ministerial Commission for the Formulation of National Economic and Social Development Plans. The Commission was in the process of preparing a national development plan which would serve as a basis for industrial programming now being affected, albeit in a disjointed manner, by the Ministry of Industry and Trade, Nacional Financiera S.A. and the Bank of Mexico S.A. Another case in point was afforded by Venezuela's Industrial Committee (Comité de Industrias de Venezuela), which was composed of top-level Government officials acting in the industrial field. Its function was to co-ordinate the formulation and execution of programmes and the establishment of industrial policy measures.

87. The representative of France reported on that country's experience. Even within a market economy, it had been considered to forecast, and then rectify by means of planning, the free inter-action of economic laws. In a concerted economy, the State established objectives and took measures designed to encourage the private sector to achieve those objectives. France's experience taught the lesson that agricultural and industrial prosperity should go hand in hand. In almost all countries, whatever their stage of development agriculture presented problems which were quite as difficult to solve as those of industry, or even more so. The time having come when regional economic co-operation was regarded as a necessity, France offered to share the integration experience it had acquired in the European Common Market and the European Coal and Steel Community. With regard to the world market problems deriving from trade among countries and regions at different levels of economic development, at Geneva in 1964 Belgium and France had jointly proposed a set of logical and consistent measures designed to stabilize the market for basic commodities through the adoption of appropriate market organization

patterns, and to promote the exports of manufactures from developing countries by granting them specific and particular preferences.

B. PRESENT SITUATION, PROBLEMS AND PROSPECTS OF THE MAIN INDUSTRIAL SECTORS

88. The main industrial sectors — basic metals, chemical, metal-transforming and textile — were discussed in working groups and their reports were considered in plenary. The delegation of Cuba reserved its position on those parts of the report which appeared as general conclusions of the Symposium on branches of industry in specific countries, for lack of sufficient elements of judgement with which to endorse those conclusions. The pulp and paper industry was analysed in the Consultative Meeting on the Development of the Pulp and Paper Industry in Latin America. The report of that meeting will be found in annex IV.

The basic metals industry

The steel industry

89. The discussions on the steel industry were mainly based on a document submitted by the secretariat,⁵ which presents an over-all picture of the existing situation and immediate prospects of Latin America's steel industry, and some preliminary conclusions regarding this sector's possibilities of integration. Two other secretariat documents were considered: the first contains a summary of the information available on the major industrial sectors,⁶ and the second an analysis of the possibilities of exporting Latin American steel products to other parts of the world.⁷ These background data were supplemented by a short statement made by the secretariat.

90. The secretariat, in its opening statement (which was based on document ST/ECLA/Conf.23/L.29) indicated that in 1964 the Latin American steel industry had produced rolled steel products equivalent to 8.03 million tons of ingots, the import value of which would have amounted to some 800 million dollars. Compared with the 2.2 million tons of ingots produced in 1952, the growth rate was 12.2 per cent annually. At the same time, imports had remained virtually steady during the past few years, at the equivalent of 3.2 million tons of ingots per annum. In 1965 production had risen to 8.2 million of ingots, and it was estimated that imports — the final figure for which would not be known until the middle of the year — had remained at practically the same level as in 1964.

91. Demand projections indicated a probable consumption equivalent to 18.6 million tons of ingots in 1970, and 28 million tons in 1975. That implied the necessity to raise existing production by 87 per cent

by 1970, on the assumption that the figure for imports registered in the last few years would remain unchanged, and to treble it by 1975, an undertaking which would require a total investment of some 5,000 million dollars in the decade under consideration.

92. The prospect of so accelerated a growth of the existing steel market for the Latin American countries taken both individually and as a whole — on the supposition that there would then be a common market —, on the one hand, made it necessary to give serious consideration to the task facing the existing industry and, on the other, facilitated a wide range of possible combinations of the expansion and modernization projects to be carried out and the new mills to be built, on such lines as to make it unnecessary to suppress any of the industries now operating under precarious conditions and at high costs on grounds of being uneconomic.

93. The industry's gestation had been difficult and had left behind it a sequel of problems which were still affecting the majority of enterprises today. Their underlying causes included: (a) the limited markets, which necessitated the establishment of such small mills that the economies of scale had a distinctly negative effect; (d) the need for import substitution on the largest possible scale, even at the cost of exaggerated diversification, with the consequent rise in production costs; (c) the indivisibility of certain equipment, which explained the construction of plants with an unbalanced structure, in which part of the capacity remained idle while the market expanded, thus warranting the expansion of all departments; (d) the lack of experience on the part of the technical personnel who had to adopt the decisions regarding the equipment and processes selected; (e) the excessive delays in the negotiations to secure financing, both at home and abroad; and (f) the shortage of experienced personnel on the production side.

94. Admittedly, the effects of those difficulties were being gradually mitigated, but so slowly that there were disequilibria between the production departments which were reflected in their output. In 1964 the rolling mills worked on an average, at only 52 per cent of their capacity, and, owing to the limited capacity of the blast furnaces and steelworks, production had suffered to the tune of 6 to 7 million tons of ingots, which represented not less than 300 or 400 million dollars annually, while various countries imported 3.2 million tons of steel products from outside the region.

95. The existence of idle capacity was due, in some degree, to the fact that certain plants were not yet ready to enter into full operation for technical reasons, but mostly to the small size of the domestic markets which offered no strong incentive to complete the plants by expanding the departments that presented a deficit. On the other hand the wide range of products had prevented a process of specialization which, in many cases, would have permitted a reduction in costs.

96. Although there had been a small volume of intra-regional trade, it had been sporadic in nature and exports had been effected at a considerable sacrifice in prices.

⁵ *La economía siderúrgica de América Latina* (ST/ECLA/Conf.23/L.29).

⁶ *Los principales sectores de la industria latinoamericana: problemas y perspectivas* (ST/ECLA/Conf.23/L.3).

⁷ *La exportación como perspectiva del desarrollo siderúrgico latino-americano* (ST/ECLA/Conf.23/L.49).

A large number of the local market limitations confronting many mills could be solved by the institution of a Latin American common market.

97. The following were some of the factors influencing production, costs and investment in the steel sector; (a) the unsatisfactory price structure and excessive customs protection; (b) the failure to introduce many technological innovations of proven efficiency; (c) plant sizes in which the economies of scale had a distinctly negative effect; and (d) the advantages or disadvantages deriving from the location of plants in relation to their sources of raw materials or their markets. The effect of each of those factors on investment and costs should be ascertained in order to determine the sums that needed to be invested in the expansion projects contemplated by the industry, and in others which had yet to be studied, in order to meet the projected future demand.

98. A comparison between the sales prices to the consumer in Western Europe and c.i.f. import prices, on the one hand, and the prices paid for domestically produced steel in Latin America, on the other, had shown considerable differences which ranged from 14 to over 100 dollars per ton between the prices paid by the Latin American and the European consumer.⁸ Indeed, the differences found were so considerable that they could not be ascribed exclusively to the high costs that might prevail in some plants. Accordingly, the existing price structure was clearly unsatisfactory because it was based on the maintenance of high prices. That was apparent from a review of the customs tariffs and other protective measures enjoyed by local steel enterprises in the various countries.

99. With regard to the influence of technological advances, document ST/ECLA/Conf.23/L.29 presented a comparison between three hypothetical mills of the same size and with the same range of products, but using different techniques. The first would be representative of the techniques most often used in Latin America; the second, of those that the steel industry could adopt through investment on a modest scale; and the third was assumed to use nearly all the latest advances. Production costs in the third mill were 31 per cent lower than in the plant using present Latin American techniques and 20 per cent lower than in the mill capable of adopting new ones. In so far as investment was concerned, the figures were 33 per cent and 24 per cent lower, respectively.

100. By way of illustrating the effect of the economies of scale, figures had been estimated for a number of hypothetical mills that could produce the same range of flat products and used the techniques attainable by the Latin American industry, between the production capacities of 100,000 and 1.5 million tons of rolled products annually. The differences in investment and in production costs noted between the mills at opposite ends of the scale were 60 per cent and 49 per cent, res-

pectively. A comparison between one plant producing 300,000 tons annually and another producing 800,000 tons annually showed that investment per ton would be 40 per cent lower in the larger plant, and production costs 28 per cent lower.

101. Lastly, in order to determine the advantages deriving from plant location, consideration had been given to a number of hypothetical mills, all alike and of the best possible design, installed on the present main sites or envisaged in Latin America's industrial plans, and a study had been made of the possible costs, which in the present case were called theoretical costs, using the prices of inputs paid by the steel industry in 1964. In order to compare the localities in Latin America with those in other parts of the world, the possible prices of inputs paid in a European Coal and Steel Community country had also been estimated and an industry of the same design and capacity — 1,500,000 tons per annum of a specific range of flat products — had been assumed to have been located there. The result of the comparison had been that there were no comparative advantages between different localities in Latin America that could not be largely offset by the cost of transport of the finished products. With regard to possible competition with a mill located in Europe, there were apparently several very favourable localities in Latin America which, even with due regard for transport costs, would be potentially in a position to export to Europe.

102. The document included an analysis of the expansion plans which were at present under study or in course of execution by nine of the most important mills. The investment considered would amount to some 600 million dollars, in order to raise production by about 3.2 million tons of ingots. The small specific investment implied by those figures was explained by the fact that, in general, the expansions contemplated were of a supplementary character. In addition a higher investment per ton produced would have to be made — totalling approximately 1,300 million dollars — to which end there were expansion plans for various enterprises and some new projects. Similarly, for 1970-1975 an estimated additional investment of 3,000 million dollars would be required, it being impossible for the present to indicate where it would be effected.

103. Since all the facts pointed to the advantages of a common market, for the establishment of which it was imperative that the steel industry's costs should be the same or as close as possible to world steel prices, the question of the industry's costs had been considered with a great deal of caution.

104. The result of the analysis was that, save in a very few cases, the mills with high virtual costs were well on the way to reducing them to acceptable levels, thanks to the increases in production already obtained in 1965 and to the expansion projects and technological improvements that might be accomplished. The virtual cost had been calculated for some mills after completion of the expansion projects in process. The reductions with respect to 1963 ranged from 30 to 50 dollars per ton produced.

⁸ Evidently, the conversion rate used in this calculation — which is applicable to imports of steel products — introduces distortions in the figures representing the prices of locally produced steel when expressed in terms of dollars.

105. To sum up, it could be established that except in a few cases, for which special safeguards might be provided in the potential common market, once expansions had been effected and supplementary plant installed, and technology had been improved, the virtual costs of the various plants would not differ so greatly as to cause apprehension lest, in the event of tariff reductions, some of them might encroach upon others' markets.

106. On the basis of the foregoing analyses, the conclusion was reached that the next step in the progress of Latin America's iron and steel industry as a whole and the development of its market was to introduce the incentive of competition through a common market for steel, with the twofold aim of obtaining steel at low prices and securing the region a foothold in the world steel market, by taking advantage of its potential aptitudes. The study outlined the possible bases and general conception of such a market.

107. The ultimate objective would consist essentially in a system of free trade among the member countries, put into effect at price levels close to those prevailing on the international market, and established on certain basic premises. The chief requisites would be to maintain the harmonious and balanced development of Latin America's iron and steel industry; to keep open the possibility of installing a steel industry in countries where it did not exist at the date of signature of the agreements; to forestall over-concentration of the industry in specific areas; and, lastly to prevent any damage to the existing iron and steel industries. For the establishment of such a free and open common market, based on the principles listed, an indispensable tool would be a co-ordinated regional investment programme, jointly formulated by the member countries, and supported by international financial assistance from the outset, with the main object of programming investment to modernize the existing plants and place them in a favourable competitive position, for which and priority investment funds would be available.

108. Furthermore, it might be desirable to divide the process into two phases. The first would be that of supplementing and improving the plant in existing mills, especially those which were at a competitive disadvantage. During that period a tariff reduction would take place, which, although small, would serve as a spur to competition and would arouse the interest of enterprises in maximizing their productive and competitive efficiency as quickly as possible. It would also be a time for trying out the instruments and measures that would necessarily have to be applied in the second stage. The possible duration of the initial stage was estimated at five years, after which a system of increasingly open competition would be embarked upon. To that end, a relatively low standard intra-regional tariff would be established, and external protection provided at a rather higher level. But another essential requisite was the agreement that would be concluded in relation to the whole set of measures, at the very outset of the interim period, to ensure that the goal represented by a fully-integrated common market

should at no time be lost sight of, and that subsequent undesirable standstills should be averted.

109. Lastly, it was pointed out that the relevant ECLA studies made no claim whatever to lay down hard and fast ideas or patterns. They merely represented an attempt to contribute to the development of Latin America's steel-making sector under a long-term plan, in conformity with the aim of regional integration and in line with the modern concept of the steel industry.

110. Three representatives of countries which do not yet have a steel industry gave brief account of the projects that are under consideration. In Uruguay, plans are being made to work a relatively low grade iron ore deposit, concentrate the ore and produce 68 per cent pellets for export. The revenue from the sales would be used to finance the construction of an integrated steel mill for producing bars and shapes. The Costa Rican projects provides for the manufacture of steel for the Central American Common Market on the basis of ferriferous and titanium-bearing sandstones. Since this entails a special process that is used in very few countries, particular attention is being paid to the technological aspects and production costs.⁹ Lastly, the representative of Trinidad and Tobago explained that enough steel was currently being consumed in the Caribbean area to justify the installation of a semi-integrated mill to operate on scrap, that would involve an investment of about 50 million dollars.

111. After making a number of comments on several earlier secretariat studies on the iron and steel industry, the representative of Argentina concluded by formulating some basic principles for regional co-operation in that industrial sector in the hope that they would serve as a frame of reference for the discussion. He recommended that consideration be given to the following measures: (1) a study of domestic demand, its structure, location and scale, with projections; (2) a study of the domestic steel industries, their production capacity, technological levels, efficiency, costs, siting and output; (3) a survey of all national steel projects; (4) an evaluation of the natural resources available and of the industry supplying strategic inputs; (5) precise estimates of national and intra-regional transport costs.

112. The first step should be for all existing steel plants to increase their productivity and efficiency by introducing technological improvements and expanding until they had reached an economic size that would, in addition, be consonant with the subsequent development of the market itself. This should be done on the basis of an initial regional agreement, whose main object would be to specify the duration of the first phase, which should be as short as possible. At the same time, ways and means of bringing about regional co-operation in equipment manufacture and scientific research should be devised.

113. With respect to the formulation of definitive conclusions on the process of regional integration, the

⁹ At the plenary meeting the representatives of Honduras and Guatemala said that iron ore deposits existed in their countries whose study would permit the optimum siting of a steel mill in Central America.

representative of Argentina raised a number of points that he hoped would be useful for the discussions, as well as for the revision and redefinition of the various concepts involved, which should be expressed in the clearest possible terms, namely: (1) the optimum size for integrated plants; (2) the range of products to be manufactured by integrated plants; (3) the role to be played by semi-integrated plants and rolling mills, as well as by steel making on a very small scale; (4) the comparative features and location of consumer centres.

114. At first sight this proposal for furthering the regional integration of the steel industry would seem very similar to that put forward by the secretariat. While both divided the process of integration into two stages, the first of which would give existing industry a breathing space to perfect its operations and complete its machinery and plant, the secretariat proposal envisaged, in addition, a treaty establishing a small initial tariff reduction to spur on steel manufacturers to accelerate the process, whereas the Argentine suggestion did not provide for any immediate change in the customs régime or even for an initial agreement to scale tariff reductions during the second stage as considered advisable by the secretariat.

115. The Argentine representative drew the participants' attention to the fact that the Latin American steel market was analysed in the ECLA study as if it had already been unified. Although the different countries' possibilities as steel suppliers had been evaluated, he was of the opinion that the characteristics and scale of national demand had not been given their due weight in the conclusions drawn. The result was that, instead of giving pride of place to the factors involved in integrating national markets as such, the study concentrated on the market as a whole. Once the sum of demand in the different countries had been calculated, this factor ceased to be considered individually, and attention became focused instead of investment programmes for existing and new plants to meet the over-all target. Some of those plants would be far from the industrial centres of the region. On the opinion of the delegation, more than one market could evolve in the region to deal with the main body of steel demand. In reply, the secretariat explained that the projections of demand had been calculated for individual countries, following an analysis of past consumption trends up to 1964 and an assessment of the probable evolution of the main factors during the period under consideration. The way in which supply would develop had been estimated solely on the basis of existing capacity, the expansion plans of the major plants and the development programmes being implemented in each country. The integration prospects revealed by the study were the outcome of the factors set forth in it, and did not derive from any scheme for the regional distribution of industry that differed in important respects from the pattern that had prevailed in recent years. The study only considered investments in projects that were already in execution or had been approved by the countries concerned. The decision as to the ways and manner in which to bring about integration, which included the complementarity or grouping of different countries on the

basis of sub-regional agreements, rested with the Governments. It had been hoped that, by giving a bird's-eye view of the whole question, the ECLA study would help them in studying the problems involved and coming to a decision.

116. As regards plant size, the delegation of Argentina suggested that, for countries where semi-integrated plants and rolling mills played an important part, a minimum annual capacity of about 250,000 tons of light bars and shapes might be considered, and that the big integrated plants might limit their production of non-flat products to medium and heavy bars and shapes, concluding their cycle with billets, which would then go to the smaller semi-integrated plants or rolling mills for further processing. In reply, the secretariat pointed out that the question of the minimum economic size for a rolling mill depended on a host of factors. In the first place, in order to reduce investment and production costs it was essential for the equipment in question to be commensurate with the products required. Moreover, if the large plants were made entirely responsible for the production of heavy billets and shapes, the repercussions on their production economy were likely to be adverse in the extreme. By severely limiting the value added that the plant could obtain in the production process, an arrangement of that kind would tend to reduce the economicity of the industries with the highest expenditure on raw materials stocks.

117. With respect to the issue of plant size, the representative of France said that for some time the more industrialized countries had been tending to build large-scale plants in order to keep costs down. At the present time, a plant with an annual capacity of 1 million tons should be regarded as the absolute minimum, but the most common size lay between 3 and 4 million tons. In his view, the same formula was not strictly applicable to Latin America, although the world trend, being guided by the criterion of economicity, ought to be borne in mind, since integration should be a means of building larger and hence more economic plants.

118. A number of participants pointed out that, in order to explore the question of integration at the level of the semi-integrated plants, it was essential to consider the different market components in greater details, including special steel and rolled product of unusual sizes. The secretariat explained that the possible expansion of semi-integrated plants and rolling mills had been allowed for by setting aside certain proportion of the over-all market for them, but that the lack of statistical data in the majority of countries had made it impossible to estimate its composition in any detail.

119. Another matter of concern to the delegation of Argentina, implicit in the basic principles it upheld, was the question of determining the location of steel mills, in relation to the proximity either of raw materials or of the consumer centres.

120. In this connexion, it was suggested that the analysis of advantages of location prepared by ECLA on the basis of technical production costs in hypothetical mills should deal in greater detail with transport

costs and the situations that might possibly result from the location of the mills in question in relation to the centres of consumption. Particular mention was made of the expenditure involved in bringing imported steel into the country, which was additional to transport costs proper. In the opinion of the delegation of Argentina, that was a matter of vital importance for any given consumer centre's choice of possible sources of steel supplies.

121. One of the delegations pointed out that although the ECLA studies provided a sound basis for the analysis of projections of future demand, the most important problem confronting the steel industry was that of obtaining financing for expansions and improvements, which currently entailed considerable difficulties. The ECLA studies did not include under investment costs expenditure on staffing, which, apart from its importance, was slow to show results. Attention should also be devoted to the question of the quality of steel products, both with a view to satisfying national market demand, and, in particular, if some initial integration system were established.

122. There was a consensus of opinion among several delegations to the effect that the problem of prices and costs in the steel industry should be approached with the greatest caution in an analysis of the type under discussion, since the exchange rates in force introduced distortions amounting, in Brazil's case, for example, to as much as 20 per cent. The secretariat had stated that the study of sales prices for locally produced steel and imports had been based on the exchange rates in operation at the time when the comparison was made, whereas for the analysis of costs the rates used had been those corresponding to the internal purchasing power of the currency, which ECLA had determined by the method described in the documents. It had pointed out, moreover, that all international comparisons, inevitably involved the possibility of distortions of varying magnitude, so that in the discussion of the general conclusions reached in the study with respect to any country, the methodological problem indicated ought to be borne in mind and its potential influence evaluated. Still in the context of the costs problem, the representative of the European Coal and Steel Community pointed out that current steel prices in the Latin American countries were high in comparison with those of the European Coal and Steel Community countries, and that if the ECLA — computed hypothetical costs in similar plants situated in Latin America and in Europe were compared, those of the Latin American mills were the lower. Such a discrepancy might be taken as an indicator of the magnitude of the structural effort required to bring down current prices to satisfactory levels. Lastly, the representative of the Latin American Iron and Steel Institute (ILAFIA), said that, in his opinion, the price of steel had little influence, as a general rule, on the sales prices of articles in whose manufacture it was used. In view of the more rapid growth of consumption in those Latin American countries that possessed an iron and steel industry, the domestic production of steel in sufficient quantities and in accordance with

appropriate specifications would seem to be more important than the price at which it was sold to consumers.

123. With regard to the introduction of technological innovations, the representative of France cited as a possibility which had not been envisaged in the study, the use of oxygen that was less pure but considerably cheaper than the type postulated. There would then be justification for the systematic use of oxygen in the blast furnaces to increase their productivity, instead of merely in the steel works, as was assumed in the ECLA study.

124. With reference to the next steps in the integration movement, several delegations pointed out that the States members of ALALC had undertaken to adopt decisions on that subject within the coming months, and that the studies presented by ECLA, and others prepared by ILAFIA, would be extremely useful to the committee responsible for formulating the specific recommendations concerned.

125. The representative of Chile expressed his general support of the road to the integration of the Latin American steel industry suggested by the secretariat. He pointed out that he agreed with the two basic points proposed — initial tariff reduction, taking into consideration all that this would imply, for the purpose of starting a trade which would not prejudice the mills engaged in investments or methods to reduce their costs or to begin production, followed by a lowering of tariffs which, from the sixth year onwards, would lead slowly to an open market and the co-ordination of regional investment, with the support of the financial agencies concerned.

126. The representative of Mexico, supported by the representative of Argentina, said that the integration proposals suggested by the secretariat were inadequate as a means of achieving the final aims of the integration process. While he agreed that a gradual liberalization of trade was needed, the mere establishment of a common external tariff structure would not suffice to establish similar conditions of production. That would require, at the same time, progress towards harmonizing economic and more particularly, trade policies which, when achieved, would determine the equitable and reciprocal distribution of the benefits derived from integration.

127. The ECLA secretariat commenting on the statement made by the representative of Mexico, said that the integration scheme suggested in its document on the steel economy in Latin America included not only a domestic tariff reduction and uniformization of external tariffs but also a gradual harmonization of the national economic policies which had the greatest impact on the steel sector's capacity to compete. It specified, moreover, that the documents references to tariff barriers was meant to cover obstacles to trade which had the same effect as tariffs.

The aluminium industry

128. In the meeting of the working group devoted to the aluminium industry, the documents used as a

basis for the discussions were volume I, chapter II, of *Los principales sectores de la industria latinoamericana: Problemas y perspectivas*,¹⁰ and *Las perspectivas del desarrollo de la industria del aluminio primario en América Latina y posibilidades de integración regional*,¹¹ which indicated the favourable prospects of development for this industry within the region and the importance for it of regional market integration based on large-scale production.

129. This information was supplemented by a secretariat statement pointing out that the aluminium industry in Latin America was still in its infancy in spite of the region's vast reserves of raw materials and energy.

130. Latin America accounted for nearly 50 per cent of world bauxite production in 1962, but processed only 10 per cent of the total alumina output. The only producers of alumina in the region are Brazil, Jamaica and Surinam.

131. Latin America's primary aluminium production was less than 1 per cent of the world total in 1962. Brazil and Mexico are the only Latin American countries with primary aluminium plants, the capacity of the two in Brazil totalling about 34,000 tons a year. The plant in Mexico which is located in Veracruz, has a nominal capacity of 20,000 tons a year, and bases its production cycle on alumina imported from the United States.

132. Venezuela and Surinam will shortly join these countries as producers of aluminium. Venezuela is to have a 10,000 tons plant to serve the domestic market. The plant is located in the industrial area of Guayana, close to an abundant supply of cheap hydroelectric power, some of which is already being harnessed, and with easy access to the traditional bauxite producers. Surinam recently completed construction on an integrated plant with an annual capacity of 60,000 tons.

133. Four countries — Argentina, Brazil, Mexico and Venezuela — consume slightly over 85 per cent of the primary aluminium in Latin America. More than 42 per cent of this goes to Brazil. Per capita consumption in the region doubled between 1951-53 and 1961-63 to a little over half a kilogramme. It is estimated that, if regional output stays at the same level, it will fall short of demand in 1975 by about 300,000 tons.

134. In view of this, and of the fact that nearly all the primary aluminium now comes from abroad, the aluminium industry clearly has very good chances of developing in the region.

135. The study submitted to the Symposium sets forth the alternative lines of national development and regional integration for the industry. The fact that there are now four countries in Latin America with an apparent primary aluminium consumption of over 10,000 tons a year — which may be taken as the minimum if not the most economic production scale — indicates that the industry could be developed locally and then extended since by 1975 three more countries will be in much the same position as the four are today. But as heavy

investment is needed to establish an aluminium industry and extensive economies of scale can be obtained with the usual technological processes, it is advisable to explore the possibilities that offer the greatest economic benefits at the regional level.

136. There are a number of ways of developing a primary aluminium industry on a regional basis. It is assumed, to begin with, that the different national markets would be fused into sub-regional markets to be supplied with primary aluminium by one or more reduction plants. Several methods of integration have been considered on the basis of the following working hypotheses: first, the possibility of keeping the regional market supplied by the countries that already have aluminium reduction plants (Brazil and Mexico); secondly, the possibility of keeping demand satisfied by adding a third plant located in Venezuela; thirdly, the development of the industry in various other countries, either because of some competitive advantages in production, or because they have a sufficiently large domestic market (Argentina, Brazil, Chile, Mexico, and Venezuela); and fourthly, the addition of Peru to the possible producers of aluminium.

137. The nexus of sub-regional plants thus established would concentrate on producing primary aluminium. It has also been tentatively assumed for purposes of the analysis that as Brazil is the sole ALALC member with large bauxite deposits it would be the only country to produce alumina. The other countries would import it.

138. The main conclusion of the study is that as the region has more than enough energy and raw materials for the successful and vigorous development of primary aluminium production, several of the Latin American countries could expand this industry on an economic basis, and achieve similar price levels to those prevailing in the domestic markets of the highly industrialized countries. If the aim is to cover total regional demand for primary aluminium in 1975, and the development of the industry is planned with an eye to regional integration, it will be possible to set up a number of plants of economic size in Latin America.

139. The delegation of Venezuela explained that the location of the aluminium processing industry had an important bearing on that of the alumina reduction plants, since the consumers of primary aluminium were largely the plants that turned out the finished products. The study before the meeting should therefore be rounded off by an examination of the processing of primary and secondary aluminium into end products.

140. With respect to the integration of the industry on a region-wide scale, the delegation of Venezuela suggested that some kind of regional machinery should be devised for achieving integration before plans of non-economic size were installed in the different countries. But before a decision could be taken to build a plant of economic size producing for the region in general, there had to be some degree of certainty that its products would find an opening there, so that investors could be induced to look on Latin America as a regional market.

¹⁰ ST/ECLA/Conf.23/L.3/Add.1.

¹¹ ST/ECLA/Conf.23/L.26.

141. The delegation of Venezuela also pointed out that the study failed to include, in its analysis of siting in Venezuelan Guayana, a plant using imported bauxite and integrated in its last two stages. The secretariat explained that the plant had not been included for want of information, particularly on the price quoted for bauxite in the contracts signed with the countries that traditionally exported it. The delegation added that the study laid great stress on the importance of the Poços de Caldas area in Brazil for the regional integration of the industry without specifying equipment conditions in that area or their incidence on production costs.

142. The delegation of Brazil said that Poços de Caldas was a fairly large town. The surrounding area contained an abundant hydroelectric potential as well as bauxite deposits, and formed part of the industrial triangle of Rio de Janeiro, São Paulo and Belo Horizonte. Alcoa planned to set up a new vertically-integrated plant there with an annual capacity of 20,000 tons.

143. The secretariat suggested that the document on the aluminium industry before the Symposium might be submitted to a group of experts from different countries who would analyze the prospects for regional integration of the industry and indicate the other studies that were needed for that purpose. The group might meet in the second half of 1966. The main purpose of the meeting would be to draft a final version for consideration by the countries and by the integration agencies.

144. There was general agreement with the proposal made by the secretariat, and it was further suggested that the experts composing the group should act in a personal capacity. The secretariat was also requested to include in its work an evaluation of the bauxite deposits in Costa Rica.

The chemical industry

145. The discussions of the Working Group on the chemical industry were directed by Mr. Santos Amaro Domínguez (Mexico), with the assistance of Mr. Roberto Petitpas, who acted as the technical secretary. The group based its discussions on the working papers submitted by the secretariat; one relating to the evolution of the chemical sector in recent years,¹² and another to petroleum products,¹³ together with the conclusions of the Seminar on the Development of the Chemical Industry in Latin America (Caracas, 7 to 12 December 1964), as contained in the report of the seminar.¹⁴ These background documents were supplemented by a statement by the secretariat, which is summarized below.

146. At the Caracas Seminar it was recommended that the information on the chemical sector should be brought up to date, more detailed studies be made on the subjects already broached by the secretariat,

and the machinery for compiling information made more flexible and speedy. Thus the secretariat would concentrate its studies on sodium alkalis, petrochemical products, and fertilizers, as indicated during the Caracas Seminar.

147. Studies in progress on the sodium alkalis and fertilizers, and the study on the petrochemical industry that had already been concluded provided some interesting figures.

148. Between 1959 and 1964 the consumption of chemical products in Latin America increased, according to provisional estimates, at an average annual rate of 9.3 per cent, from 2,900 million to 4,500 million dollars over the whole period. The growth rate for 1962-64 seemed to be higher than for 1959-1962. If expansion continued at that rate, consumption would amount to 7,000 million dollars by 1970 and 11,000 million by 1975, that is, a per capita consumption of 30 dollars in 1975 as against 20 dollars in 1964.

149. Output amounted to 3,080 million dollars in 1964. Although that was the result of an annual increase of about 10.5 per cent, there was no slackening in the growth of imports, which amounted to 1,120 million dollars in 1963 and 1,200 million in 1964, mainly because certain groups of major products (agricultural products, plastics, sodium alkalis and basic organic chemicals) had to be imported to meet up to 40 per cent of apparent consumption. Furthermore, although in recent years there was some local production of new products in the region, there was no notable increase in import substitution. As for exports, no diversification was achieved, volume did not rise appreciably, and there was no increase in intraregional trade.

150. With respect to the sodium alkalis, the studies in progress indicated that the market for these products was expanding more rapidly than might be expected, and that by 1975 some 1,050,000 tons of sodium carbonate and 1,150,000 tons of caustic soda would be required. Although the region did not possess, or had not yet developed, resources of the raw materials (salt and limestone) on favourable conditions and within easy distance of the consumer centres, there were three or four locations where the characteristics and reserves of the raw materials were sufficiently encouraging to warrant an attempt at large-scale production of sodium carbonate, which would permit f.o.b. prices similar to the existing net prices of the imported product, and thus open the way for meeting the consumption requirements of the countries of the region at prices acceptable to the consumer industry. The total foreseeable production capacities including projects now under construction in Mexico and Colombia, and the expansions that would have to be envisaged over the medium term, compared with the above-mentioned demand for sodium carbonate, would leave a balance of demand of about 220,000 tons in 1970 and about 540,000 tons in 1975, which could be supplied by additional production units. It was stressed that this type of industry also called for a fairly extensive scale of production. Thus it would be necessary to achieve, at the most favourable

¹² *Los principales sectores de la industria latinoamericana: problemas y perspectivas* (ST/ECLA/Conf.23/L.3).

¹³ *La industria petroquímica en América Latina: evolución y perspectivas* (ST/ECLA/Conf.23/L.30).

¹⁴ Report of the Seminar on the Development of the Chemical Industry in Latin America (ST/ECLA/Conf.23/L.5).

sites known today, volumes of production of 300,000 tons a year in order to obtain costs (ex-factory) comparable to those in the industrial countries, that is, about 42 dollars a ton. This figure would rise to 46-50 dollars for plants producing 160,000 tons a year, and to 60 dollars for plants producing only 80,000 tons, for those locations in the region where the basic raw materials (salt and limestone) were available at costs below five dollars a ton. Those figures were in striking contrast to the vast range of prices to the consumer in the different countries of the area, from 52 dollars to 200 dollars a ton for sodium carbonate, and from 100 dollars to 280 dollars a ton for caustic soda. These large cost differences in the existing industries were due partly to the fact that in some cases conditions were less favourable, and partly to other factors that were analysed in the study in progress.

151. As regards fertilizers, the analysis of existing and future ¹⁵ demand, even though somewhat premature, offered some interesting features. The demand for soil nutrients (nitrogen, phosphorus and potassium) had risen from about 450,000 tons at the beginning of the fifties to 1.15 million tons in 1964. In view of the promotional effort that would have to be made, the use of fertilizers in the region might result in a total consumption of soil nutrients of between 1.8 and 2.4 million tons in 1970, and between 2.5 and 4.1 million in 1975, according to provisional minimum hypotheses.

152. The achievement of those goals would largely depend on the cost of production of the various fertilizers and its relation with the price of the various agricultural products of the region. It was desirable to improve that ratio without delay by attacking the factors that affected the structure of the costs of production of the fertilizers.

153. The analysis of the supply was complex and differed according to the soil nutrient concerned, because of the variety of resources in the region and the large number of projects and plans of production based on very different technologies. In the light of this situation, it should be borne in mind that the region possessed appreciable reserves of natural gas at a sufficiently low cost to permit the development of the production of ammonia, which was the basis of the nitrogen fertilizers. If these advantages were combined with economies of scale in operating costs and capital costs, through the establishment of units of large capacity (500-900 tons a day, or even more), the region would be in a position to meet its nitrogen requirements on an economic basis, and perhaps even to face the growing competition on the world market, which was contingent on an equally rapid expansion of production capacity in other regions. Some of the projects currently under consideration in various countries were directed mainly to export production. In all, the projects concerned would represent an installed capacity of over 2.5 million tons of nitrogen a year.

¹⁵ This question was entrusted to ECLA under the programme of studies agreed between IDB, ICAP, FAO, ECLA and other regional organizations (see document ST/ECLA/Conf.23/L.3, chapter III).

154. The large number of projects that existed was accompanied by a wide divergence in the prices announced (from 35 to 180 dollars per ton of ammonia). The projects with the lowest prices would be able to compete on the world market, while those quoting the highest prices sought to justify them by comparing them with the existing level of domestic prices in the countries concerned. The execution of small-capacity projects would lead once again to the mistaken policy of installing plants that did not attain the minimum economic size. Hence, apart from special situations involving proximity to high-consumption agricultural centres, the difficulties of transport, or *force majeure* in the form of economic pressure, preference should be given, in producing ammonia, to the projects that could ensure a highly competitive footing both as regards the region itself and as regards world markets. This preference would also mean, from the regional standpoint, that there would be appreciable economies in the total investment devoted to ammonia production.

155. As for the other fertilizers, not only would a better ordering and complementing of their expansion be called for, but there must also be greater efforts in the prospection for new mineral resources, and the efficient and economic exploitation of those already surveyed or developed, as regards both the phosphates and the potassium fertilizers.

156. The timeliness of the studies on the supply and demand of fertilizers in Latin America would in many cases permit the adoption of a regional criterion for the development of that branch that would put it on an equal footing with the industry of the more industrialized countries.

157. With respect to the petrochemical industry, document ST/ECLA/Conf.23/L.30 defined it as that branch of the chemical industry whose primary products were directly derived from natural gas and petroleum products and were used to obtain intermediate and final products in general. For the analysis of the future development of that industry the aim was to project the potential demand for the "indicator" products (benzene and ethylene).

158. Recent evolution made clear that the industry was making an increasing contribution, in terms of gross value of production, to the total for the sector, that contribution having risen by 50 per cent between 1962 and 1964 (from 1.10 to 1.73 per cent). However, output of those items was still very low in absolute terms.

159. The study of the petrochemical industry already completed permitted some interesting conclusions. Although the prospects were favourable, it was important to put more emphasis, in the national plans, on the regional aspect, and the fact that that element would increase as time went on, because in the petrochemical field structural changes in production and in markets were very rapid. Thus in the existing plants, and in some of the projected plants, there were many low-capacity production units, and although such units might be justified at a given moment on grounds of the existing

domestic sales prices, they entailed the risk of slowing down the development of the regional market.

160. With respect to the basic petrochemicals, solid advantages could be obtained through greater complementarity between the countries of the region. In fact the bulk of those products were liquid hydrocarbons that were transportable and could be produced at competitive costs at a number of places where there were large refineries of an advanced technological level.¹⁶ An expansion of the intraregional trade in those products would make it possible for the large number of chemical industries based on them to operate on a less heterogeneous basis in terms of the cost of their raw materials. Thus the prospects of expanding the trade in these secondary products (intermediate or final) would be improved, and the region as a whole would receive the benefits of the opening up of a healthy intraregional competition.

161. The secondary petrochemical products offered prospects, especially in those countries where the domestic demand alone appeared insufficient as yet to justify the production of such items as carbon black, synthetic rubber, methanol, dodecylbenzene and other members of the group of synthetic detergents, the vinyl plastics and the polyolefins, etc. In fact, with a few exceptions, there were no projects at an advanced stage relating to the production of those items in the above countries. However, within a fairly short period production would be initiated, in many cases in the form of domestic plants of unjustifiably small capacity. The sector could, instead, advance its development through the conclusion of agreements between the countries concerned, with a view to the installation of plants intended to meet the foreseeable demand of all those countries. That possibility was even more promising in view of the interdependence between petrochemical production and the petroleum refineries, given the national character of the petroleum enterprises, especially in Colombia and Chile. The conclusion of such agreements would perhaps be facilitated by the recent formation of ARPEL (Asistencia Recíproca Petrolera Estatal Latinoamericana).

162. The size of the unsatisfied margins of demand in the countries concerned showed that not all of them could provide a demand approaching the minimum economic levels capable of encouraging new investment without delay. A regional policy of economic development would help to remove that obstacle over the short term. Through intensified efforts it would also be possible, with favourable effects on Latin America's economy, to contemplate projects of the maximum capacity currently feasible, with the principal aim of entering world markets on an equal footing with the great international enterprises, and thus at the same time meeting the increased demand of the Latin American countries.

163. In the discussions on the statement by the secretariat and the documents submitted, comments were made on the methodological problems raised by the diversity of the petrochemical products, which cons-

tituted an obstacle in analysing the development of the petrochemical industry. To illustrate the possibility of using representative indexes, mention was made of the system based on the carbon equivalent of the petrochemical products, as used in the statistics of the Organization for Economic Co-operation and Development (OECD) and the European Economic Community (EEC).

164. The representative of *France*, who was also the chairman of the study group on the chemical industry organized by the EEC, referring to the International Symposium on Industrial Development, described the responsibilities of that study group in preparing a world report, for which purpose it would use the data gathered by the various regional economic commissions. It was considered desirable to organize the available information by products, particularly as regards the projections of demand for the region. The Latin American countries would thus be able to obtain a bird's eye view of the world situation which would be useful in drawing up their sectoral development programmes, and in preparing studies for the world symposium.

165. The representative of *Chile* said that the main ideas adopted by his country in planning new chemical plants were based on three criteria: development of its natural resources, the expansion of the chemical sector and the creation of new export lines that would help to relieve the balance of payments. The Chilean projects included the creation of an industrial complex based on the use of natural gas, at Magallanes, for the production of ammonia at the rate of 350,000 tons a year, and of solid nitrogen fertilizers, at the first stage; the creation of a complex based on ethylene that would be produced at the new petroleum refinery at Concepción, mainly for the production of polyethylene and polyvinyl chloride; the production of phosphoric acid and triple superphosphate, based on the large-scale use of the waste gases from the refining of copper concentrates, which would permit the production of sulphuric acid at a cost of 10 dollars per ton or less, together with other projects that were still under study.

166. The plans for the development of the petrochemical sector in *Venezuela* included the formulation of projects and agreements aimed at the expansion of the output of fertilizers (both nitrogen fertilizers and phosphates and compound fertilizers, on the basis of phosphate rock), the installation of plants producing polyethylene (50,000 tons a year), vinyl chloride (50,000 tons a year) and synthetic rubber of the polyisoprene type, in a complex based on the production of ethylene (150,000 tons a year) and propylene (90,000 tons), from propane. The resources available had even made it possible to consider exporting ethylene, towards the end of the next five years, on a full competitive footing, with f.o.b. costs of the order of 50 dollars a ton. Competitive possibilities also existed in the case of vinyl chloride, since it could be obtained at a cost of 130 dollars a ton or less, and could be exported at c.i.f. prices of the order of 180 to 200 dollars a ton. In general Venezuelan costs for those petrochemical products and basic raw materials such as ethylene, propane, natural gas and petroleum, were about 50 per cent of world prices. The development policy adopted in Vene-

¹⁶ They could also be produced in special industrial complexes created for this purpose.

zuela was aimed at supplementing that initial advantage with others derived from the maximum use of economies of scale, as the polyethylene programme showed; the scale of production adopted in that case, of 50,000 tons a year, required an investment of about 400 dollars per ton of annual capacity, whereas the unit investment which would rise to about 1,000 dollars for plants that were five or six times smaller. The ammonia projects under consideration in Venezuela involved a production cost of the order of 14 dollars a ton which, when transport and other costs had been included, would make it possible to sell the product at 40 dollars a ton c.i.f., or less.

167. The representative of Trinidad and Tobago referred to the progress achieved in his country in petroleum refining (partly on the basis of petroleum imported from different producing areas). In 1965 output was 156 million barrels, which represented about 2.5 times that amount of crude oil. The production of basic petrochemicals, which was already well advanced, was expanding; some examples were benzene, with an annual production capacity of 320,000 tons; toluene, 100,000 tons a year, which was to be raised to 600,000 tons; cyclohexane, 350,000 tons a year, styrene, 600,000 tons a year; nitrogen fertilizers, 600,000 tons of urea, 300,000 tons of anhydrous ammonia and 100,000 tons of ammonium sulphate, all figures which were well on the way to being doubled. In addition to these basic products intermediate products were also manufactured, including methanol, styrene, glycols, oxo-alcohols, phthalic anhydride, etc. The above production figures were not in line with the limitations of the domestic market. Great sacrifices had been made in the fiscal sphere to encourage the development of these products, mainly through the total exemption from import duties on production machinery and raw materials, the granting of a tax holiday for the first ten years of operation of the new plants, and in general, by the application of a policy of substantial aid on the part of the Government. Nevertheless, the country had to broaden its markets, and was consequently particularly interested in the development of a regional market, and in any step towards supplying that market from outside the region, a point of special interest to his country.

168. In Brazil, the recent formulation of a large number of products was the result of the creation in 1964 of GEQUIM, the Executive Group for the Chemical Industry, and the promulgation in February 1965 of the decree establishing the conditions of entry for private enterprises into the activity of producing basic petrochemical materials. Those factors, added to the expanding domestic demand, provided favourable conditions for the rapid expansion of the chemical industry in Brazil. The projects approved, with their respective production capacities, included the following: ammonia (450 and 550 tons a day), compound fertilizers, phosphoric acid (37,000 tons a year), polyethylene (63,000 tons), polyvinyl chloride (32,500 tons) methanol (36,000 tons) glycols, isocyanic acid (3,000 tons), etc., as well as others, for the production of cyclohexanol and ethylene dichloride, ethyl chloride and metallic sodium, whose execution was contingent on the PETRO-

BRAS projects for the production of cyclohexane and tetraethyl lead.

169. The recommendations of given projects ensured that they would receive certain exchange or tax incentives, this being the form of guidance with which GUIQUIM was empowered. The bodies represented in that agency were the National Development Bank, the Ministry of Industry and Trade, the Ministry of Planning, the Currency and Credit Department, and other national bodies.

170. The expansion of the market in a country as a result of the timely establishment of production activities designed to meet growing demand, was illustrated in the case of Mexico, where the trends followed by the demand for chemical products had warranted new projects, frequently on a considerable scale. In addition to ammonia, the demand for which was increasing so fast that 74,000 tons had had to be imported in 1964, other products bearing out that assertion were dodecylbenzene and the sodium alkalis. Besides the successive expansion of production units, two new sodium carbonate plants (Pajaritos and Monterrey) would soon be entering into operation and would permit exportable surpluses in the next few years. The development of ammonia in Mexico was a clear example of the rapid evolution of what were regarded as economic scales of production, since in 1954 the first unit installed (Cuautilán) had had a capacity of 60 tons daily; in 1959 the first unit with a daily output of 200 tons had been established; a plant with a daily capacity of 1,000 tons was now envisaged; and two similar units were under consideration, which might well be discarded in favour of new projects with a capacity of 2,000 tons daily. Nevertheless, Mexico did not think had exportable surpluses, since the projected demand for nitrogen for agricultural use would be over 750,000 tons annually.

171. The various statements on the development programmes and projects in course of execution clearly showed a tendency — which was manifest in the case of Chile and Venezuela and implicit in that of other countries — to consider the export angle in any new projects in the petrochemical sector, particularly for the production of ammonia (Colombia and Peru). As opposed to the possibility of appreciably increasing exports of chemical products, based on the existing favourable conditions for obtaining them at low cost in various countries of the region were the uncertainty of access to external markets, the decline in the world prices of a large number of petrochemical products and the surplus production capacity existing in other regions. Some delegations expressed concern at the situation and suggested, as a means of strengthening and guiding the region's future position in the world market, the establishment of enterprises based on multinational capital — preferably Latin American — the adoption of uniform criteria in relation to fiscal incentives to investment in that field; and, in particular, the co-ordination of national programmes that would complement one another.

172. Most of the representatives agreed with those views, and some referred especially to the machinery

for implementing a regional policy. Thus, the delegation of Chile suggested that the co-ordination of development policies in the petrochemical sector should be approached at the highest level in an effort to secure the best possible regional structure for that branch of industry. To that end, use could be made not only of the studies now being completed by the working group set up by the Advisory Committee on Industrial Development (CADI) and the Latin American Free-Trade Association (ALALC), but also those carried out by ECLA and the national agencies concerned. Stress was placed on the need to adopt such agreements by means of negotiations between representatives of the various countries, which would be conducted at the regional level and would possibly not be confined to the ALALC countries.

173. Another question meriting the participants' attention was that relating to certain basic raw materials of the chemical industry, e.g., sulphur. The recent decline in world supplies of sulphur was a matter of concern in other parts of the world (the European Economic Community — (EEC) and in some of the Latin American countries (Argentina and Brazil); allied to Mexico's present policy of conserving its reserves Latin America should lose no time in exploiting on a larger scale the other natural resources that could be used to obtain such essential products as sulphuric acid. In that respect, special attention was focused on the possibility of utilizing sulphur freed in the copper production process or available in pyrites (Chile, Peru and Venezuela). Note was also taken to the efforts made by Brazil to find a commercial use for the pyrites associated with the coal produced in Santa Catarina, and of the exploratory work carried out in the highlands of Guatemala (Quetzaltenango) and in the Petén area the latter with the aid of the United Nations Special Fund.

174. Latin America's supplies of phosphates would increase considerably with the exploitation of the Sechura deposits — already recognized in Peru with production in 1968 — and with the development of original concentration processes in Brazil, applicable to minerals of the apatite-carbonate type to be found in the São Paulo area. By 1967 that source could supply concentrated raw materials (35/38 per cent) on the basis of materials with a content of only 5 per cent P_2O_5 , at competitive costs compared with the price paid in Brazil for imported phosphorites, for the proposed new plants manufacturing phosphoric acid and superphosphate concentrates. In view of its considerable deposits of apatites and apatite carbonites, Brazil could cover its growing consumption and might even become a source of phosphates for the regional market.

175. With respect to other factors conditioning the development of certain branches of the chemical industry, attention was drawn to the importance of organizing the distribution and marketing of fertilizers, in order to prevent the expected expansion in the region's production capacity from being obstructed by the conditions existing in the market for those products in most of the Latin American countries. Moreover, the sudden

and sometimes simultaneous appearance of new large-scale projects in the countries of the region created temporary surpluses of production capacity which resulted in the partial operation of some plants. That would seem to justify a policy for the promotion of exports to countries outside the region in order to make better use of the huge investments involved, although such exports would at first produce a narrow margin of profit.

176. Statements made by some of the participants indicated certain lines along which the development strategy to be followed for the chemical industry in the next five years should proceed if basic goals were to be achieved that would replace import substitution as the over-riding aim that had dominated the process of growth in the past. In other words, while import substitution would continue in primary commodities and intermediate goods, an endeavour would be made to seek for products that could be exported in a specific form to Latin America and, above all, to the world market.

177. The possibility of doing so would be confirmed by an analysis of the figures supplied by the delegations of Brazil, Chile, Mexico, Trinidad and Tobago and Venezuela on domestic demand and its relation to the capacity of new projects envisaged for the next five years. The projects in question relate to basic products — ethylene, benzene, ammonia, sodium alkalis, sulphuric acid and phosphoric acid — and the capacities provided for were the maximum permitted by the present state of technological knowledge and the use of new processes recently applied on an industrial scale as, for example, in the production of phosphoric acid from hydrochloric acid. The costs quoted for these projects indicated that their products should be able to compete on a high favourable footing on the world market and even more readily in the region itself.

178. Consequently, even if the process of integration in this industrial sector were channelled along the right lines — in particular by the countries whose chemical industries reached an important stage of development in the last few years (Argentina, Brazil, Mexico and Venezuela), and those where the continuity of development would be furthered by regional integration, efforts must also be made to intensify the development of industry as a whole in order to revive and invigorate the external sector of the different economies as one of the tools for achieving economic and social progress.

179. In view of some of the features of these projects, i.e. type of products to be made, production costs, availability of natural resources and their location, that sectoral strategy could give the industrial development of the region a stronger dynamic impetus by promoting the optimum use of production resources. In fact, as the basic products to be processed were supremely important for the whole vast construction of industry, their availability on a large scale at low cost would provide the industries that used them in the Latin American countries with a common basis on which to remedy the present distortions and lack of uniformity in the prices of final products, and facilitate

trade by hastening the day on which the Latin American common market would become a reality.

180. These projects with their maximum capacities and modern technological methods would help Latin America to develop its chemical industries at a pace that would more nearly approximate that of the same industries in the more advanced nations of the world. The figures quoted by some delegations on the volume and sources of investment funds showed that both foreign and Latin American investors preferred levels of capital that, while high and geographically concentrated, assured them a good rate of return in terms of world markets rather than of either national or integrated markets in Latin America.

The metal-transforming industry

181. The discussions were based mainly on the document *Los principales sectores de la industria latinoamericana: problemas y perspectivas* (ST/ECLA/Conf.23/L.3/ Add.1), which presented a comprehensive picture of the position of the metal-transforming industry in general and of the manufacture of specific capital goods in particular. Other reference documents included a study on the development prospects of Uruguay's metal-transforming industries,¹⁷ describing a programme for their future evolution, with emphasis on export prospects within the Area; a study on the development of Venezuela's metal-transforming industry,¹⁸ advocating a programme based on import substitution as a means of creating a sectoral infrastructure; and a document on the present situation and prospects in respect of the machine-tools industry in Argentina.¹⁹

182. The discussions were preceded by an introductory statement made by the secretariat in which attention was drawn to the fact that the metal-transforming industry as a whole — which embraces the manufacture of metal products, machinery and equipment, including electrical equipment, and transport material — represents nearly 17.0 per cent of the regions's total manufacturing industry. With a value added of about 4,000 million dollars, its contribution to the gross domestic product is slightly over 4 per cent. In terms of employment, this industry maintains a labour force of nearly 1 million persons, i.e., 15.6 per cent of the total employment registered in Latin America's industrial sector.

183. This over-all appraisal is clearly applicable to an activity that has attained a certain size and importance. However, there are large gaps between the development levels reached by the various countries and the favourable average situation presented above is merely a reflection of the weight carried by the major Latin American countries — Argentina, Brazil and Mexico — which altogether account for 90 per cent of the total metal-transforming activities in the region. In these

countries, import substitution in respect of durable consumer goods has reached very high levels and considerable headway has been made in the production of capital goods. By contrast, in the remaining countries the limitations of the domestic markets, combined with other factors, have greatly hampered the expansion of this industry. In both groups of countries disequilibria and maladjustments are noted in the development of the metal-transforming industries which, of course, constitute a serious obstacle to complementarity and integration within the content of a regional scheme. On the one hand, the industry has developed spontaneously in the major countries, and this has resulted in the manufacturers' excessive concentration on certain lines of production thereby forfeiting the benefits of specialization, or the under-utilization of installed capacity, and, in other production lines, in the short supply of intermediate or semi-processed products. The speed at which the process has taken place, moreover, has prevented the simultaneous adoption of the appropriate institutional measures that should accompany the industry's development, relating, *inter alia*, to such questions as manpower training and technological research.

184. On the other hand, the medium-sized and small countries present, in greater or lesser measure, considerable deficiencies in the structure of their production, a marked backwardness as regards technology and an almost complete lack of a suitable infrastructure for the metal-transforming industry, apart from which they have virtually no specific plans or programmes for the development of this industry.

185. Domestic production satisfies about 60 per cent of the region's consumption of products of the metal-transforming industry. This average assessment of Latin America's position is no doubt strongly influenced by the major countries of the region, which have succeeded in meeting a high proportion of the consumption of both durable consumer goods and capital goods. In the medium-sized and small countries, consumer needs are satisfied to a varying extent by domestic output, but the proportion are far lower than in the major countries, and the position is aggravated by a lag in production which is much greater than might be expected from a direct comparison of the sizes of the respective markets or of other economic indicators. The rate of growth has, on the whole, fallen short of the possibilities offered by their own markets, despite their small size, and the metal-transforming industries have evolved in an unco-ordinated fashion for want of guiding principles and a clear-cut economic policy for directing their development. All this is reflected today in a number of manifest weaknesses which extend from its infrastructure to the entrepreneurial organization itself. It will be seen from these facts that the countries concerned are scarcely in a position to begin to derive any immediate benefit from the regional integration of this industry, quite apart from the serious difficulty they would have in competing at the domestic level with the more advanced countries of the Area.

186. This state of affairs should be remedied as soon as possible in order to prevent the existing disparities

¹⁷ *La industria mecánica del Uruguay: un programa para su recuperación y desarrollo* (ST/ECLA/Conf.23/L.13).

¹⁸ *The metal-transforming industry in Venezuela: an import substitution development programme* (ST/ECLA/Conf.23/L.4).

¹⁹ *La fabricación de maquinarias y equipos industriales en América Latina: IV. Las máquinas herramientas en la Argentina* (ST/ECLA/Conf.23/L.18).

from being further accentuated, since, in addition to excluding these countries from the benefits of a common market, this would even jeopardize the domestic economic development process itself. The manufacture of exportable products was almost more vital for the future of these countries than for that of the major countries, since, besides the reasons connected with a negative trade balance, the maintenance of vigorous rates of industrial growth requires that external markets should come to complement the domestic ones, which would not suffice on their own. So far the development of the metal-transforming sector has been sustained largely through the increase in industrial services and maintenance activities, and the establishment of plants for the assembly of durable consumer goods and, to a lesser extent, the production of certain simply manufactured products of the metal-transforming industry for which there is considerable consumer demand.

187. The future prospects offered to these countries are closely linked to their formal adoption of appropriate plans for the development of these industries, the remedying of their structural deficiencies and the filling of their technological gaps, in order that the sector can obtain the means of production which, besides enabling it to supply the domestic market satisfactorily, would place it on a high enough technical footing to enter into complementarity or integration agreements with other countries in relation to the manufacture of more complex products of the metal-transforming industry, which will no doubt represent a substantial proportion of regional trade in the future.

188. The studies presented at the Symposium and the discussions thereon led to the unanimous conclusion that import substitution constituted a source of dynamic impetus to the development of this industry and, at the same time, the best road towards the creation of a sectoral infrastructure and the absorption of more advanced techniques. It was further noted that decisions regarding the manufacture of new lines of production in this sector should be adopted not only on the basis of manufacturing costs, but with due regard for the benefits they would bring as regards the spread of techniques and the favourable indirect effects they would have on the quality, standardization and interchangeability of the products of metal-transforming in general. In that respect, it was emphasized that all countries of the region should benefit equally from the spread and absorption of new techniques, a point which should be taken carefully into consideration in all future studies. Nevertheless, it was made clear that progress in the development of the metal-transforming sector was subject to a gradual systematization, in that certain stages could not be implemented unless they were based on prior technical experience.

189. In that order of ideas, the importance was recognized of the existence of enterprises specializing in certain techniques, as against their vertical integration.

190. It was also recognized that the large-scale access by all countries to new techniques and processes would automatically lead, in certain cases, to the admission

of specialization and, therefore, to the concentration of production on particular items of the metal-transforming industry, thereby conducting to an import substitution scheme on a regional scale.

191. It was further recorded that opportunities were opening up for the region of initiating the manufacture of specific products of the metal-transforming industry and electrical articles, with a view not only to satisfying domestic needs, but also to exporting them to highly industrialized areas. The reason is that Latin America would be in a favourable position to produce those items, since wage increases in the industrialized countries were not accompanied by corresponding increases in productivity and, therefore, their manufacture in those areas was no longer an attractive proposition. Some projects of that nature — although on a moderate scale — were already being initiated in the region.

192. Attention was focused on the importance of the metal-transforming industry and its fundamental role in the maintenance of industrial equipment and installations and transport facilities; it was noted that, in the process of developing lines of manufacture, priority might have to be given, in specific cases, to the production of parts and spare parts.

193. There was consensus in recognizing the limiting effect of the shortage of skilled personnel at all levels and the inadequacy of training systems and programmes on the above-mentioned process. In that respect, stress was placed on the urgent need to accelerate the training of workers, foremen, technicians and production engineers, and of the personnel needed to adapt the existing lines of metal-transforming, and to devise and plan new ones. The participants also noted the importance of training at the entrepreneurial level if the industry was to be efficiently run. Several countries gave an account of the efforts they were making to deal with this problem, and it was evident that even in the major Latin American countries, which have made most headway in personnel training, there were still gaps in particular specialties.

194. Concurrently, attention was drawn to the important role played in the development process by the centres for applied engineering research, the establishment of standards and specifications in respect of manufacturing and materials, including the relevant measures for their control and, lastly, industrial health and safety provisions.

195. The documents presented at the Symposium, which dwell in particular on the position of specific capital goods such as basic industrial equipment and machine-tools, show that the greatest strides have been made by those countries possessing the largest domestic markets, where the manufacture of products of the metal-transforming industry covers a high proportion of existing consumption and where the production capacity is sufficient to meet a substantial part of the demand envisaged for the next decade, especially as regards basic equipment. It was recognized, however, that on account of the diversity of products and manufacturing techniques, there were opportunities in that sector for all countries, on a greater or lesser scale, to initiate the domestic manufacture of those capital goods and to

complement one another's production. It was nevertheless admitted that that would entail the adoption of a number of measures to remove certain obstacles that were now restricting the development of those activities both at the national level and in a regional market. In essence, all those obstacles were attributable to the lack of a development programme, either general or sectoral. The absence of goals, the lack of knowledge concerning the domestic market and its future trends and, in general, the absence of a well-defined economic policy that would encourage and protect the development of that line of manufacture — which on the supply side definitely belonged to the metal-transforming industry, while on the demand side it was closely linked to the country's industrial and economic growth — were the chief factors underlying the conditions under which the industry had developed. Moreover, the credit and financing systems were not organically organized to meet the needs of that line of manufacture. In this respect, attention was drawn to Brazil's efforts to find a solution to the lack of medium and long-term financing by the establishment of various funds with the specific purpose of financing, *inter alia*, the purchase of machinery and equipment, as well as new investment and expansion in respect of the small and medium-scale enterprises. A special recommendation was formulated by the delegation of Chile to the effect that international financing, which was contingent upon the purchase of equipment wherever the credit was extended, constituted a serious obstacle to the local development of that branch of the industry, since part of the equipment could nearly always be supplied by local manufacturers. It was stressed that action in that field would be highly profitable and necessary.

196. It was further recognized that the measures and action that would have to be adopted for the development of that industry, on both the national and regional plane, coincided with those contained in the ECLA document presented for the consideration of the Symposium.²⁰ Those measures relate, particularly on the domestic side, to the organization of manufacturers on co-operative lines as a means of making better use of the installed production facilities, encouraging the subcontracting of services, amplifying the existing knowledge of the possibilities for domestic manufacture and turning the technical resources to better account; to the adoption of a policy for the local purchase of equipment and the definition of a policy for promoting the local design of equipment in line with the standards and specifications that permit interchangeability. On the regional side — through co-operation between countries — steps would have to be taken to promote co-operation between national producers' associations; to establish a system of regional preference for the purchase of industrial equipment and gradually to reduce or eliminate the tariff and other barriers obstructing trade. Again on the regional side — through interamerican co-operation and development agencies — action would be needed to carry out studies of demand and supply for the region as a whole; to promote the transfer of know-how, build-

ing-up of the regional engineering and the establishment of manufacturing standards and specifications.

197. The meeting took note with satisfaction of the studies being carried out by ECLA in that connexion.

198. With respect to the manufacture of machine-tools, it was noted that considerable progress had been made in meeting demand — particularly in Argentina and Brazil — although not on the same scale as in basic equipment.

199. The trends followed by the two countries had been very similar and presented many common features, according to the studies carried out there. The industry's development was limited by the same factors as those affecting the production of basic industrial equipment, but in the present case they presented different shades and had repercussions which often seriously jeopardized the sector's development. As an indication of the field in which action was required, attention was drawn to the heterogeneous nature of demand, the acutely competitive market, the technical and research needs imposed by the manufacture of machine-tools, the time and capital required to launch new models and the strong competition from international production centres.

200. In both Argentina and Brazil the industry had developed in response to the same incentive, i.e., the supply of demand for machine-tools for the maintenance of manufacturing activities in general, a field in which technological and manufacturing requirements were not as strict as in the case of production machinery. The transition from that stage to the manufacture of machinery involving more responsibility was under consideration in the two countries; but the adoption of the technical, economic and institutional measures such an industry required would call for the concerted action of both the manufacturers and the national authorities. It was recognized that action at the regional level would be highly fruitful and necessary if the industry was to be established on a sound basis and directed towards specialization.

201. The stage of development reached by Argentina and Brazil had been the result of the individual initiative and effort of a large number of manufactures who lacked a proper knowledge of the market as a whole and of its development trends, as well as the general guidance to enable them to turn their investment and efforts to better account. Nor had they had the backing of a clear-cut policy aimed at encouraging the industry's establishment, *apart from certain tariff or exchange measures which had served to encourage import substitution*. Thus, the sector's present structure did not make for development, in view of the great majority of small and medium-scale enterprises which lacked the technical and economic facilities to undertake the manufacture of more complex machinery on their own; the marked concentration of manufacturers on the same type or model of machine, thereby forfeiting the benefits of specialization and of larger-scale production; and an under-developed line of manufacture.

202. However, a small number of enterprises in these countries were noted for the technical standard attained, the quality of their products and their apparent efforts

²⁰ See ST/ECLA/Conf.23/L.3/Add.1, chapter V.

to meet the requirements of demand. They could be classified as manufacturers proper, with many of the characteristics and aptitudes to meet the requirements of demand and operate on the export market. That group of enterprises constituted the basic nucleus that was tackling the manufacture of production machinery, i.e., specific machines for large-scale manufacture, as distinct from the more universal type produced today. Nevertheless, they had not escaped the consequences deriving from the lack of a comprehensive knowledge of the market and its future prospects, the shortage of credit and the absence of a national policy for the development of the sector concerned. Brazil had recently adopted certain specialized credit measures, corresponding in part to the launching of a policy for promoting the metal-transforming industries, which had had a favourable effect on the machine-tools industry.

203. The sector's future development prospects and the attainment of a larger share in the supply of domestic needs and of a better competitive footing on the external market were largely contingent upon the removal of the above-mentioned structural and technical deficiencies. In that respect, the establishment in those countries of an institute for research on machine-tools, as recommended in the ECLA studies, would bring highly fruitful results.

204. It was noted that the machine-tools sector afforded unlimited possibilities for regional trade and complementarity. The huge range of types and their respective variations, to say nothing of the different quality standards for the machines according to their use, would permit the existence of various specialized plants. It was considered that Latin America, with an estimated market in 1970 of some 250 million dollars and an existing production of not more than 50 million dollars—incomplete as regards a large number of types of machines—offered considerable attractions that would warrant giving careful consideration to the future of that line of manufacture.

205. Lastly, it was noted that Latin America possessed a fairly important textile machinery industry. That particular branch of manufacture was also under study and the information thus far gathered indicated that the manufacturing capacity installed in four countries—Argentina, Brazil, Colombia and Mexico—made it possible to supply nearly 60 per cent of Latin America's total demand.

206. It was clearly necessary to modernize the textile machinery inventory in the very near future and the regional textile machinery manufacturing industry might have an important part to play in the process. A very provisional estimate of over-all needs in respect of the renewal of Latin America's textile equipment was in the neighbourhood of 480 million dollars about two-thirds of which could be supplied by the regional industry within the next five years, mainly in so far as spindles, looms and finishing machinery are concerned.

207. It was recognized, however, that although promising, the position of the industry manufacturing textile equipment presented certain difficulties which, if not overcome, would result in the sector's continuing to function without a programme of work and, conse-

quently, with no prospects of expanding. It was noted that the two sectors—the textile industry and the textile machinery industry—though closely linked by common interests, did not seem to have found a formula for working together harmoniously. They lacked proper guidance and, above all, the necessary technical and financial assistance that would enable them to unite the efforts which are at present dispersed in the two sectors.

208. It was considered that the clarification of the above points and the measures to be adopted in the sector in question should be defined in the light of the conclusions reached in the studies now under way on the textile industry and the manufacture of textile machinery.

209. Lastly, attention was drawn to the need to carry out systematic studies on the metal-transforming sector with the purpose of identifying the various aspects of the obstacles to its development, the corrective measures that should be adopted and the prospects for its expansion from the standpoint of both the opportunities afforded by the domestic markets and those created within the framework of an integrated regional market.

The textile industry

210. The group based its discussions on the working paper *Los principales sectores de la industria latino-americana: problemas y perspectivas* (ST/ECLA/Conf.23/L.3/Add.1), which in chapter V summarizes the conclusions of the studies in the textile field carried out by ECLA in eleven Latin American countries. The four most recent studies in this series, relating to Argentina, Ecuador, Venezuela and Mexico, were also examined by the working group,²¹ together with two documents of a technical economic nature whose aim was to establish certain programming criteria for the textile sector. One of these documents deals with economies of scale in the cotton spinning and weaving industry,²² and the other with the choice of technologies in the Latin American textile industry.²³

211. These background documents were supplemented by a statement by the secretariat. This statement pointed out that the main problems facing the textile industry in most Latin American countries relates to the proper use of the resources involved, both human and material, and the achievement of efficient operating conditions permitting a reduction in the price of Latin American textiles. Since the industry was established long ago, the question of large-scale import substitution was one of minor importance for the region as a whole. Over 90 per cent of the region's consumption of textiles was based on local production. However, this general average represented individual figures that varied considerably according to the fibre and the country concerned. For

²¹ *La industria textil en América Latina*: VIII. Argentina (ST/ECLA/Conf.23/L.8); IX. Ecuador (ST/ECLA/Conf.23/L.7); X. Venezuela (ST/ECLA/Conf.23/L.11); XI. México (ST/ECLA/Conf.23/L.31).

²² *Economies of scale in the cotton spinning and weaving industry* (ST/ECLA/Conf.23/L.9).

²³ *The choice of technologies in the Latin American textile industry* (ST/ECLA/Conf.23/L.33).

such fibres as cotton and wool the figure was even higher than 90 per cent, and for the man-made fibres it was considerably lower. Thus there was still some margin for import substitution, especially for the synthetic fibres. It was emphasized that the figure of 90 per cent was for Latin America as a whole, and reflected the influence of the figures for the three main producers (Argentina, Brazil and Mexico), since some of the smaller countries were still largely dependent on imports for supplying their textile consumption requirements.

212. The scale of textile consumption in Latin America could best be conveyed by the figures on its volume and value. In 1965 estimated consumption had been slightly over a million tons, and its value at factory prices had been over 4,000 million dollars. These figures showed the industry's importance in the manufacturing sector, in view of the high proportion of the total produced in the region. In terms of volume consumed, cotton was the principal fibre, accounting for 74 per cent of the total. The remainder represented wool and man-made fibres. The most rapid expansion in recent years had been in the consumption of synthetic fibres, but even so, this consumption still represented only 4 per cent of the total.

213. In general the consumption of textiles had developed slowly, because of the slow growth of income and the pattern of its distribution, and because of the relatively high prices of textiles. Population growth permitted only a modest growth rate in this industry, which could and must be raised if the existing low level of textile consumption was to be increased, so as to cater for the great mass of potential consumers. These data, which were studied in greater detail in the regional report on the textile industry in Latin America, at present in the final stages of publication, gave grounds for estimating textile consumption in 1980 at 2.2 million tons, with a value of 9,400 million dollars. These figures represented a percentage increase of 108 per cent in volume and 129 per cent in value, as compared with 1965. Thus it appeared that one of the essential requirements was the proper programming of the increased production in order to avoid the problems currently plaguing the industry, which would tend to worsen the situation if appropriate measures were not taken to rationalize the investment called for by this expansion, in terms of the choice of machinery, of mill size, and of operational efficiency. A rough calculation indicated that to achieve the above-mentioned goals for 1980, the industry would have to invest, during the intervening period, a total of 8,000 million dollars, or about 500 million dollars a year, on machinery and buildings alone.

214. The ECLA studies on the operating conditions in the textile industry included comparisons of labour productivity in different countries. For that purpose a theoretical Latin American standard has been established, on the basis of modern machinery of the conventional type such as that found in the region, with normal yield and workloads, in other words with the number of workers for that machinery, that was considered feasible in Latin America. That standard of reference was consequently considerably below the productivity levels to be found in Europe. In fact, it amounted

to about 50 per cent of the existing levels of labour productivity for Europe, and slightly over a third of the level for the United States. Despite the modest standard set, only one of the eleven countries studied by ECLA, had been able to exceed it (in terms of the average for the country as a whole). All the remainder had levels ranging from half to two-thirds of the standard. (The figures concerned are given in chapter VI of document ST/ECLA/Conf.23/L.3.) Consequently the relatively low wages in the textile industry were offset by an even lower productivity, so that the total cost of the labour input in Latin America was not very different from that in the highly industrial countries, where labour costs were high. Though the wages in those countries were much higher than those in Latin America, so was labour productivity. Nor could the low productivity in the region be attributed to deficiencies in machinery or equipment. On the contrary, Latin America's machinery inventory, with the important exception of Brazil, and to a lesser extent Peru, was fairly modern compared with that of the European countries which, although they had undertaken intensive modernization, still had a considerable number of obsolescent machines. Hence it could be concluded that the labour factor was not used to advantage in Latin America, with the exception of Colombia, the only country that had managed to exceed the productivity standard. But the problem was more complex than it appeared. In the studies carried out by ECLA, in which individual enterprises were analysed, it had been noted that within the same country there were great differences in productivity; some progressive enterprises had levels much higher than that of the standard, while others had very low levels. The coexistence of two such different types of mill in the same market raised doubts about the effectiveness of the competition in those countries. It was emphasized that the textile industry had been established in nearly all the Latin American countries under the shield of considerable protection against external competition, so that the existing market was virtually closed.

215. Apart from the inefficient use of manpower, it was also stated that the machinery and equipment were not properly used in the region as a whole. Certain countries, such as Colombia, could be excepted from that generalization, and certain mills within the various countries, but their weight in the total was not sufficient to change the general conclusion. The machinery ranged from the up-to-date to the semi-up-to-date, except in such countries as Brazil and Peru, and in some sectors of the wool textile industry, where obsolescent machinery predominated. The inadequate use of the machinery was revealed by the hourly output, which was lower than that attainable with the machinery installed. Apart from that deficit in output when the machinery was operating, there was an additional deficit, perhaps even more serious, in terms of the shifts, and number of hours worked by the machinery during the working day, and the working day, and the working days per year. In this respect also the machinery, which in fact represented the scarce factor of capital and investment in foreign currency, was not used to the full, often because of the family nature of the enterprise, which did not conduce

to two or three work shifts, and in some cases because the entrepreneur was reluctant to maintain a large labour force, since the labour laws imposed restrictions on dismissals, which might become unavoidable as a result of the fluctuations of the market.

216. Clearly these deficiencies, to which must also be added those relating to the raw materials (as regards both quality and waste), were reflected in high production costs, and consequently in high prices for the textiles produced, which tended to prevent a more rapid expansion of demand.

217. It had also been observed that the existing structure of the textile industry in Latin America included a very large number of establishments of less than economic size. The existence of these mills, and the possible establishment of new mills of less than economic scale, meant not only that investment per unit of output was higher, but also that production costs were higher, quite apart from the dispersion of entrepreneurial and technical skill, which was also scarce in Latin America. At the same time, new investment must take into account the technical criteria suitable to the region and its special conditions, especially as regards the relative costs of labour and capital. It was stressed that in the absence of any fixed policy on this question, an industrialist would tend — and from his own standpoint with some reason — to import the most modern type of machinery, which required fewer workers. That trend, which was also partly due to the relative facility of obtaining loans for investment in machinery, on the one hand, and to labour problems, including heavy social insurance contributions, on the other, conflicted with the economic and social aims of the countries that had to provide employment for large masses of their people, and that also needed to restrict their investment in foreign currency, and the amortization payments and other capital charges entailed. That was rather a delicate question, which did not necessarily apply to every industry. But in the textile industry the result was to leave open a choice of technologies, in other words, selection of machinery involving varying levels of labour inputs, naturally at different prices, without any reduction in the quality of the final product being involved. It was advisable for those alternative technologies to be borne in mind when new investments were being made in the textile industry, since new investments on a considerable scale would be needed. A study on that question had been prepared, giving the details of the calculations involved. In brief, it showed that in the light of the prices of the capital and labour factors prevailing in Latin America, a technology that was highly capital-intensive and absorbed little manpower would not give lower production costs than a technology involving conventional but up-to-date machinery which was less capital-intensive and required a larger number of workers.

218. In discussing the general aspects of the textile industry in the under-developed countries, most of the representatives gave a brief description of the situation of the textile industry in their own countries, concentrating mainly on the general features of the industry, and referring in some cases to the ECLA textile studies. Mention was also made of problems relating to the

market, the importing and exporting of raw materials and manufactures, the policy of stimulating and protecting the industry, and so forth. In general it was confirmed that the situation of the textile industry was unsatisfactory, because of an insufficient and improper use of the factors of production, leading to high product costs. It was stated that in some cases recently installed mills with up-to-date machinery were operating at very low levels of efficiency.

219. The recognition of this situation, and the consequent need to take action, either in the individual countries or on a regional basis, to obviate or diminish its ill effects, led several representatives to suggest that it was advisable to go more deeply into the causes of the situation. To be more precise, what was needed was to determine whether the textile industry's operational deficiencies were the result of a situation attributable to the structure and characteristics of the industry itself, or whether they were due to difficulties relating to institutional factors, or factors common to the whole of the manufacturing sector.

220. The Central American countries gave an account of their experience in market integration through the abolition of customs tariffs for raw materials and for some types of fabric, while maintaining a high customs duty for products coming from outside the area. In addition the representative of the Central American Bank for Economic Integration (BCIE), an agency that had extended a number of loans to the textile industry in Central America, explained the criteria adopted in financing the installation of new enterprises, which included: a guarantee that the product to be manufactured would have a firm market in at least two countries in the community; the prospect that it would help the balance of payments, either through exports to countries outside the area, or through the reduction of the import content of inputs; some reduction in the consumer price of the product, and the training of the skilled workers needed.

221. In the Central American countries the common market had led to a considerable reduction in domestic prices. In addition, conditions had been established permitting the installation of new mills, the minimum size being regarded as 10,000 spindles or 300 looms. The industrialization policy in the textile industry was directed towards the specialization of production with a view to selling a substantial proportion of output to the other countries of the Central American market.

222. An interesting technical problem was raised in relation to the tariff protection policy being considered in the Central American common market, to promote the textile development and specialization programme. In this connexion, the representative of SIECA pointed out that the Central American customs tariffs had meant greater protection for heavy fabrics such as blankets or drill-cloth which require few techniques and less investment. However, although the new tariff policy under consideration sought import substitution in respect of light fabrics, there was also every desire to promote the production of heavy fabrics other than those of the traditional type, such as curtaining, furniture upholstery,

etc., which required more complicated techniques and greater capital investment. The problem was therefore how to scale the tariffs now based on weight in order to discourage production and traditional heavy fabrics and to promote that of fine heavy fabrics.

223. It was also stated that small countries in the Caribbean, which did not have a domestic market large enough to justify integrated plans of an economic size, were turning to the idea of specializing in certain processes for the manufacture of products for export, in order to compensate, at least in part, for the fact that they had to import most of their textile raw materials. However, in some cases these exports were limited because of obstacles created by the industrial countries for which these products were intended.

224. On a number of occasions there was reference to the raw materials. Representatives emphasized the trade difficulties due to this factor, and stated that there was a choice between the specialization of production in each country on the basis of the use of the raw material produced in the country concerned, and permitting free trade in raw materials.

225. A class of textile fibre mentioned as being of special interest for the industry of several countries were the hard fibres. There were also a number of studies and development plans for the use of these fibres, with a view either to domestic consumption or production for export.

226. Great interest was also evinced in the marketing of textile products, and in the clothing industry, as being relevant to a systematic survey of the conditions in which the textile industry was operating.

227. The poor degree of rationalization of the successive stages of the cycle of production (in the integrated enterprises the various sections were not easy to bring into balance at the optimum size level) and the lack of flexibility in the distribution sector, had resulted in new approaches, such as encouraging the activity of a converter, who would undertake the mass purchase of grey goods and be responsible for their delivery to the finishing plants, thus permitting a greater diversification of the product.

228. In relation to the question of the regional integration of textile markets, and subsequently during the review of the benefits that might be expected for the region, it was suggested that main causes of the stagnation of the textile industry in Latin America were the small markets available, the lack of rationalization of production, and the lack of properly trained labour. Concern was also expressed over the difficulties encountered in the negotiations at the regional level for the integration of the textile markets. One representative stated that the ECLA studies on the textile industry in the Latin American countries contained the elements needed to serve as a guide in formulating an integration policy.

229. Representatives of highly industrialized countries of Europe and North America who were members of the working group had some interesting comments to make. A historical review of the evolution of the textile industry in the United Kingdom clearly showed that the importance of that sector in relation to manufactur-

ing as a whole tended to decline. That meant that the United Kingdom had to resort to an increasing extent to imports to supply its domestic market, although originally the textile industries of that country dominated the world market as exporters. This natural evolution of the United Kingdom textile industry in Europe and the United States, where it had gradually lost its leading position among the other manufacturing industries, may open the way to an economically advantageous location of the industry in the Latin American countries, because of the possibility of a favourable combination of resources, especially raw materials and labour, this suggested that the under-developed countries might find an export market for their textile products.

230. The United States representative stated that in his country, when it was recognized that the textile industry was suffering from a decline, the Government and private industry united their efforts to find a way of restoring its vigour. The result was a programme providing, *inter alia*, for the following measures: government assistance in research; the granting by the tax authorities of higher depreciation allowances; the correction of the system of cotton prices that had formerly put the domestic producer at a disadvantage. By these measures the modernization of the industry had been brought about, through the replacement of machinery and improvement in mill buildings.

231. When the discussion turned to the plans for the reorganization and modernization of the Latin American textile industry, it was made clear that the rate of progress differed very much from country to country. In some cases well grounded programmes based on careful analysis had been introduced, with projections of the need for additional machinery, with their degree of utilization, in the light of future demand. There had also been a selection of the most suitable technologies, and of the mill sizes permitting the most rational use of the factors of production. In general it was considered that the action of the Governments in carrying out these plans took the form of indirect measures, to be more precise, measures relating to financing, tax measures and, above all, a discriminatory tariff policy.

232. Many representatives described the situation in their own country. The representative of Mexico stated that his Government had just completed an exhaustive study of the textile industry, relating not only to operating conditions, but also to questions of marketing and production costs. The study showed that the efficiency of Mexico's textile industry was about 40 per cent of a standard considered attainable in Mexico, which was itself considerably below the limits attainable in the United States. In relation to the standard established by ECLA, Mexico compared favourably with other Latin American countries as regards the cotton sector, where the level attained represented 88 per cent of the ECLA standard in spinning and 55 per cent in weaving. Hence a programme for the reconstruction of the industry had been formulated, based on the following postulates:

In projecting the machinery requirements to 1970 and 1975, account was taken only of domestic demand,

excluding imports and exports. The machinery to be installed was to be technically the most advanced available on the market, provided that its efficacy was fully proved.

It had been assumed that between 1965 and 1970 all the obsolescent machinery would be replaced by up-to-date machinery.

For the cotton and artificial fibre section the plan was for the industry to increase its machinery utilization from the level of 85 per cent prevailing in 1962 to 97 per cent by 1970.

An effort would be made to improve the industry with respect to work methods and also to recast its structure by increasing plant size to achieve dimensions considered optimum.

233. The working group was also shown an example of a programme for the reorganization of the textile industry in Cuba, based mainly on the full use of installed capacity, a reduction in the number of mills to permit consolidation into units of minimum economic size, specialization of production units in order to rationalize production, and emphasis on the production of articles that would help to improve the balance of payments by reducing imported inputs to the minimum, and building new textile mills for the processing of both hard and soft fibres.

234. Several delegates discussed questions relating to economies of scale and the choice of suitable technologies, especially the latter, on which there was a division of opinion that to some degree reflected the conditions prevailing in the countries concerned.

235. With respect to economies of scale it was stated that in many cases the small size of the markets and the fragmented production structure, consisting of very small units, led to high costs. One example given was the recent installation in Latin America of plants for the production of synthetic fibres that were below the minimum economic size; that represented the reinforcement of an existing situation that in fact ought to be remedied.

236. The representative of the secretariat made a statement in which he emphasized that the classic problem of the optimum use of the factors of production had become of prime importance in the textile sector of today, since this industry was being transformed into a characteristically capital-intensive activity, which created new problems for the planning agencies. (The relevant data are given in document ST/ECLA/Conf.23/L.33.)

237. The document submitted for the discussion of this problem reviewed five different technological levels, of which three were regarded as representing possible choices for industry. These three levels represented machinery considered up-to-date in 1950, 1960 and 1965, and involved an investment of 6,600 dollars, 12,700 dollars and 20,600 dollars, respectively, per worker, in a mill with three shifts a day. Value added per workers was 2,500 dollars, 3,600 dollars and 5,200 dollars a year, respectively, and the corres-

ponding product-capital ratios were 0.37, 0.28 and 0.25. These figures not only showed the high degree of capital intensity of the textile industry of today, in relation to the workers employed, but also, and above all, how speedily technological evolution had reversed the position of the textile sector as regards the capital-labour ratio.

238. The figures obtained in the study under consideration led to the conclusion that from the economic standpoint, with due regard for the social repercussions, the intermediate level technology, that is, the level corresponding to 1960, was that best suited to Latin America in its present conditions of development. The reasons for that choice included the fact that there was a striking disproportion in the changes in the main indexes of productivity, capital intensity and manpower absorption that occurred between the different technological levels. Between the two extreme levels there was a slight rise in reinvestable surplus at the cost of a steep reduction in the level of employment. Moreover, the greatest changes related in every case to the switch from the lowest technological level to the intermediate level, while the changes between the latter and the most advanced level considered were in some cases insignificant. Since the creation of one unit of employment at the intermediate level (equivalent to 1960) required twice the investment needed at the lowest level (equivalent to 1950), while at the highest level (equivalent to the present day) it required three times that investment, there was no doubt that the opportunity the textile industry offered of adopting an intermediate technological level should be fully explored.

239. This position was supported by several delegations, while the representative of Mexico defended his country's use of the most advanced technology on the grounds that, given the conditions in his country, and the broad reconstruction programme that the textile industry was undergoing, it would not be advisable to lag behind the highly industrialized countries of Europe and North America.

240. The representative of Cuba also supported the use of an advanced technology, stating that the mills with the most modern machinery would have a more solid economic base, even if real wages, which are low in Latin America, were to rise, and that the competition from the synthetic fibres was bound to be felt over the short term, and would be easier to meet with a more advanced technology.

241. In sum, the working group was unanimous in recognizing the unsatisfactory situation in which the textile industry in Latin America found itself, according to the analysis made in the various ECLA studies. It was considered that the industry in other regions, also suffered from serious problems, especially in some of the highly industrial countries. However, in those countries the difficulties were due to very different factors from those operating in Latin America. In that respect there was general agreement that there should be a detailed analysis of those factors, and of the poor use of human and material resources in the textile industry in Latin America. It was considered desirable

that ECLA, and other agencies specially concerned with this field, should study both the general aspects of those factors, that affected all manufacturing industry in Latin America, and the specific aspects relating to the textile sector, with special emphasis on the institutional conditions in which the sector has evolved.

242. Similarly, the working group agreed on the need to take action to remedy the existing deficiencies in the industry. Such action could be taken at the national level or at the regional level, or at both. It was agreed that the programmes concerned should cover all the elements that affect the activity of the textile sector, including such items as an analysis of the most rational use of fibres, in terms either of their availability or of their use. Other aspects which various representatives thought needed more detailed analysis, and which should be included in such a programme, were the decentralization of the industry, within an individual country, the marketing of textile products, and the clothing industry. An element in a national policy recommended as essential in stimulating competition and more efficient operation was the use of the tariff instrument to permit possible temporary imports to establish price levels more favourable to the consumer. At the regional level similar aims could be achieved by progressive integration through the liberalization of trade.

243. There was general agreement that the application of a programme of action of that type should take account of certain technical and economic criteria, which should include price-elasticity, economies of scale, choice of technologies, standardization of production, and specialization, to name only a few.

244. During the discussion consideration was given to various forms of a programme for the textile sector in terms of direct participation by the Government and by the entrepreneurial sector, in consultation with industry. Most countries considered that although the Government should draw up the general lines of the programme and the criteria underlying it, the industry itself should be mainly responsible for putting it into effect. It could rely on the assistance of the Government in such matters as credits, the granting of import facilities for machinery, and other measures relating to taxes, such as the granting of tax exemptions for those enterprises that take part in the programme. The group considered that the programme should be carried out with the assistance of the local agencies concerned with the various aspects of it, such as institutes for fibre research, productivity centres, agencies for professional and vocational training, and credit agencies, among others. Similarly, most of the group considered that international technical assistance provided through the specialized agencies concerned with the various aspects of the programme could make a valuable contribution, and that international financial agencies could also assist. Lastly, the group expressed its hope that, in view of the information already collected in this field by ECLA, it would continue to co-operate in the analysis of the problems affecting the textile industry in Latin America.

C. PROBLEMS RELATING TO FINANCING, EXPORTS AND SMALL INDUSTRY ²⁴

Credit for industrial expansion

245. The participants agreed that the industrial development of the Latin American countries had been limited by insufficient capital formation in the industrial sector. That, in turn, was due to the insufficient reinvestment of the funds generated by the industrial enterprises and the weakness of the stock markets and the credit machinery.

246. It was recognized that depreciation reserves, considered as an internal source of funds for industrial enterprises, were generally lower than those of the enterprises of the more developed countries, and where there was inflation, the reserves were sharply reduced by the devaluation of the capital. In addition the percentage of total profits invested was low, and was often sufficient only to offset in part the inadequate depreciation reserves, without contributing much towards capital formation or expansion of capacity.

247. During the discussion on the reasons for the low level of domestic capital formation, in relation to profit margins in the industrial enterprises that were equal to or higher than those in the developed countries, the representatives of Colombia and Argentina stated that a substantial volume of funds was siphoned away from the developing countries, through various channels, to the industrial countries, thus depriving Latin American industry of valuable opportunities. The representative of Colombia said that his country was considering the establishment of an organization that would be responsible for recovering such funds, and suggested that action on those lines should be taken on a multinational or regional basis. It was agreed that the suggestion should be passed on, through the secretariat, to the United Nations Conference on Trade and Development.

248. The representative of Cuba stated that the shortage of capital in the Latin American countries had traditionally been due to the low prices fixed by the developed capitalist countries for the export commodities of the developing countries, and the existence of various channels for the flight of capital abroad, such as remittances of profits by foreign companies to their headquarters abroad, the interest that had to be paid on foreign loans, excessive royalty payments, and other items of invisible trade. He added that the only way to prevent such flight of capital was to change the structure of the ownership of production and to provide for State control of foreign trade.

249. Regarding the sources of external financing for enterprises, it was noted that they served to offset only in part the deficit left by the internal generation of funds. The stock market had succeeded in channeling only a small volume of funds into industry. A number of representatives stated that in their countries there was no organized stock exchange, and others said that

²⁴ See annex III, which contains the list of documents that served as the basis for the discussion of this item.

although a stock exchange did exist in their countries, its activity was very limited. Only a small percentage of industrial enterprises used that method of increasing their supply of funds. The bulk of transactions was undertaken directly between enterprises, or between individuals and enterprises, as a result of the family pattern of industrial ownership (with ownership concentrated in very few hands) and management control.

250. Mexico's experience in that field was interesting, although probably unique in Latin America. That country's representative said that Mexican industrial enterprises effected considerable savings and had access to other and abundant sources of funds through their operations on the free stock market. Issues of undustrial shares had at all times received the firm backing of the Nacional Financiera and the Bank of Mexico. Moreover, the shares put out by the Nacional Financiera, that paid a high rate of interest and commanded a ready market, had been widely bought, not only in Mexico itself, but in the last few years outside the country as well, thereby enabling the Nacional Financiera to make substantial volume of personal savings available to enterprises.

251. In most of the Latin American countries, the possibilities of personal savings were limited by the low level and unequal distribution of income, which restricted the scope of the stock market's activities unless these were concentrated on facilitating transfers of funds among the enterprises themselves.

252. In discussing the availability of bank credit, the participants pointed out that although short-term credit was usually easy to obtain — sometimes subject to ceilings and nearly always at high rates of interest — medium and long-term credit was so difficult to secure that many transactions had to be abandoned for want of funds.

253. Although in the last few years, most of the countries of the region had developed special forms of medium and long-term credit for development purposes, the funds thus applied and the systems used for providing them were clearly inadequate for the extensive and varied requirements of a rapid industrial development process. In some countries, commercial banks were not empowered to grant medium and long-term credit, which in certain cases, were given instead by private specialized bodies that were nearly always associated with such banks but operated on the basis of different rules that made the operations more expensive. Only a few large enterprises, usually connected with the commercial banks, had access to credit on satisfactory terms of maturity and interest, while most of the medium and small-scale producers were compelled to operate under the conditions described above or outside the banking system, in which case the terms were even more costly.

254. The public bodies, either by controlling the volume and destination of private credit, or by channeling part of their own funds as loans for industry, had helped to some extent to solve the problem of the shortage of medium and long-term resources.

255. Representatives of various countries gave an account of the credit systems applied there. The representative of Argentina mentioned the important part that had been played for some time, by the Industrial Bank and its subsequent weakening for want of funds, while the representatives of Honduras and Paraguay expressed hopes that the agencies recently set up there to provide the first medium and long-term loans for industry would have a beneficial effect on the economy.

256. The representatives of Brazil described the measures adopted recently by this country to reform the banking system so as to adapt it to present needs. He referred in particular to the establishment of a group of funds which permitted the financing of specific activities: thus, the Fund for Financing the Purchase of Industrial Machines and Equipment (FINAME) financed the purchase and sale of domestically produced machines and equipment, with credit on terms ranging from two to five years, the Fund operated through financial agents, i.e., the commercial banks, private financing associations and regional and State banks, which, in their turn, could resort to the said Fund to refinance their activities. The programme for Financing the Small and Medium-scale Enterprise (FIPEME) of the Banco Nacional de Desenvolvimento Economico operated in the more restricted field of small and medium-scale industry, providing credit for the establishment of new enterprises and the expansion of those new in existence. The Fund for Financing the Study of Projects and Programmes (FINEP) provided funds for the preparation of projects and programmes on such lines as to ensure that the best possible use was made of the scarce resources available for investment. The Fund for the Democratization of the Capital of Enterprises (FUNDECE) provided firms with working capital on condition that access to registered capital was made available by issuing shares on the stock market. All the funds mentioned had been recently created and in every case the interest rates were attractive to enterprises, since the currency adjustment rate was added to the basic rate of 8 to 12 per cent tended to be lower than the prevailing rate of inflation. It was proposed to establish an additional fund to finance exports of manufactures.

257. Particular attention was focused on the subject of credit for financing the capital goods industry. Several representatives pointed out that the loans granted for the establishment of new industries were rarely used to purchase capital goods in the country effecting the investment, because foreign competition offered credit terms at reasonable rates of interest, sometimes provided by agencies of their own Governments, whereas the capital goods industry in certain Latin American countries — which in some cases operated at the same levels of technique and costs as those ruling for imported goods — lacked the specialized systems for that type of operation.

258. The representative of Brazil explained that the recently created FINAME could be used only for new capital goods produced in the country.

259. Some countries of the region would be in a position to export certain types of capital goods, but until recently lacked the appropriate machinery for financing such operations. In that respect, the representative of the Inter-American Development Bank (IDB) recalled that his Bank had put a special programme into operation for refinancing exports of capital goods, which was being made use of by some countries.

260. The delegation of France drew attention to the importance of complementing export credits with credit insurance, as a means of increasing the efficiency of instruments of that type.

261. The secretariat pointed out that it would be desirable for Latin American countries manufacturing capital goods to report on their production prospects, so that international agencies could earmark part of their credits of the purchase of the goods in question.

262. Another subject which was discussed with keen interest was that of the industrial credit policies applied by international financing institutions and agencies in developed countries. The delegation of France and of the United States described the credit instruments used by those countries for the benefit of Latin America. The representative of IDB stated that the external resources available were not being fully utilized, partly because of the shortage of properly-studied projects. That was why IDB had advocated the establishment of national pre-investment funds to finance programme and project-preparation studies.

263. The representative of IDB also alluded to some of the recommendations formulated at the United Nations Conference on Trade and Development (Geneva, 1964) in relation to the financial assistance extended by the industrialized to the developing countries. He referred particularly to the one advocating that such co-operation should as far as possible permit the free use of external resources for the purchase of goods and services in those markets which offered the best terms in respect of prices, quality and delivery periods, including the markets of the recipient and other developing countries. He also recalled the recommendation that at the request of the recipient country the role of national development institutions should be taken into account in the channelling of funds obtained from external sources, and reminded the meeting that it was not being complied with. The Conference had earnestly requested that a proportion of the financial assistance granted should be extended to developing countries, when feasible and appropriate, through such regional agencies as the Inter-American Development Bank and the African Development Bank, or in association with them.

264. Several delegations emphasized the desirability of increasing the share of goods and services produced by Latin American countries in the purchases effected with external loans, whether the latter came from international institutions or from agencies in developed countries.

265. Particular stress was laid on the drawbacks attaching to tied loans. The delegation of Chile said that such stipulations deprived domestic production in the develop-

ing countries of the powerful incentive that might be represented by purchases of goods and services in the recipient country.

266. The delegation of Argentina said that a reasonable condition might be to accord the Latin American countries a level of protection amounting to 15 to 20 per cent in the international competition to which purchases financed with external resources were normally subject.

267. The delegation of the United States declared that measures ought to be established to place domestically-produced goods on a more competitive footing, but reserved judgement as to the possibility of altering the terms on which external credits were granted.

268. There was a consensus of opinion to the effect that in cases where Latin American countries were in a position to offer goods and services on competitive terms, they should be given priority in respect of purchases made with external credits, and that the possibility of granting priority in other instances should be studied.

Exports of manufactures to the rest of the world

269. When the symposium turned to this item, the secretariat summarized the reasons for Latin America's special interest in exporting manufactured goods. They included (a) the requirements of economic development, where manufactured exports would have an important role to play in compensating for the slow growth, both relative and absolute, of exports of primary commodities; (b) the opportunity that existed of increasing industrial development through the expansion of certain production lines for which domestic markets did not provide adequate outlets; and (c) the possibility of obtaining hard currency revenue.

270. In that connexion ECLA was preparing, in a programme undertaken jointly with the United Nations Conference on Trade and Development (UNCTAD), five studies on Argentina, Brazil, Chile, Colombia and Venezuela, analysing the various possibilities of exporting manufactures. The studies in question were divided into four sections. The first analysed, on the basis of an appropriate classification, exports of manufactures over the past five years, describing trends, outstanding products, and the destination of the exports; where possible factors that had stimulated exports were indicated. The second section examined the institutional factors that had affected the exports of manufactures, in other words, measures relating to exchange rates, taxes, administration and credit, or promotion in general, which represented the instruments through which the Governments were carrying out their programme to stimulate exports. In itself the account implied suggestions as to the improvements that should be introduced in order to provide a more powerful stimulus to exports. The third part of the studies gave the results of certain surveys carried out in each country covering a varying number of selected products, the aim being to determine what exportable surpluses would be available if there were intensive use of plants; competitive prices on the world

market (on the basis either of actual costs, or of the marginal cost that would result from the proposed intensive use of the factors of production); possible problems relating to raw materials; the quality and characteristics of products, and other points. That analysis had led in most cases to estimates of very large exportable surpluses, which must of course be regarded as highly theoretical, since it was most unlikely, in view of existing conditions, that maximum machinery utilization could be achieved, except through a general structural transformation of the economy. The fourth section of the reports dealt with both the real facts and the possibilities opened up by the survey, and projections of potential exports were given, in terms of value, for the short and medium term (1-2 years and 5-6 years, respectively). The possibility of attaining the levels of those projections was contingent on the fulfilment of certain requirements indicated in the relevant passage of the text. In some cases the problems dealt with were considered susceptible of fairly rapid solution, while in others the remedy would take longer. Hence the potential increases in exports were not on the same scale for all the manufacturing sectors. The factors that limited or stimulated the exports considered fell into two main groups: the first related to the operating conditions in each industry, such as, *inter alia*, cost and availability of raw materials, improvement of production processes to reduce processing costs, the establishment of qualitative controls of production either by the enterprise or by the Government, special forms of financing, and so forth; the second covered institutional factors that also called for remedial action, especially as regards the instruments regulating rates of exchange.

271. However, the important part played by domestic demand in determining the actual level of exports must not be overlooked. In Argentina and Brazil, the two countries for which a first draft of the study had been completed, exports of manufactures had followed a sharply increasing trend during the past two years, which corresponded with recessions in the domestic markets.

272. There were grounds for fearing that, when domestic demand recovered, exports might sink to earlier levels, but it was also possible that the export flows that had been established in the meantime might persist, at least for some products. But it was clear that circumstances in both countries favoured general action, both at the institutional and enterprise level, in the form of basic measures of economic policy to consolidate and increase exports of manufactures.

273. Another part of the joint UNCTAD/ECLA project consisted of exploring the prospects for exports of manufactures from Latin America through international concerns, i.e., firms which had their head offices in the industrialized countries and subsidiaries (or associates) in the Latin American countries, and in certain cases, operated on the world market through their own distributing organization.

274. Among the measures required to stimulate exports, such as that of increasing competition in the manufacturing industry by means of the large-scale integration of the intra-regional markets, several represent-

atives reported on how the prospects of increasing exports had been included in their guidelines for practical action.

275. Among the most illustrative experiences was that of Mexico, where administrative reforms such as the following were carried out: the reorganization of customs services and the simplification of the pertinent formalities and documents; the establishment of compensatory arrangements in respect of trade operations, consisting in the co-ordination of imports and the external sale of surpluses of various goods; and the appointment of new commercial counsellors in its embassies in other countries. The fiscal measures included the adoption of the Brussels Tariff Nomenclature (BTN) as the basis for the Mexican foreign trade tariff; the abolition of export taxes on most manufactures; reductions in taxes on business income deriving from sales to other countries; import duty exemptions in respect of raw materials, materials or parts used in the manufacture of export items; and reductions in income tax in so far as it corresponded to profits resulting from the enterprises' increase in exports. Changes had also been effected in many of the customs restriction systems, with a view to facilitating imports of products used in the manufacture of export items — packing, raw materials, etc. —, regulations being established concerning their volume and wastage. All those exemptions were authorized only when the item exported contained a high proportion of national value added.

276. The financial measures put into practice in Mexico included the action of the National Foreign Trade Bank, with a system of financing comparable to that existing in the more advanced countries, if not in regard to volume, at least in that it provided funds at rates of interest and on terms that could compete on the world market and the Fund for the Promotion of Exports of Manufactures administered jointly with the Bank of Mexico. The rediscount operations so far undertaken by the fund had already reached a figure of some 30 million dollars and included the refinancing of a considerable range of credits, extending from the very short term to periods of up to five years. The Fund's resources were obtained by the levying of a 10 per cent tax on imports of goods imported under general tariff headings and an increase of 10 per cent *ad valorem* on imports of luxury goods.

277. The Mexican Government had decided to carry out a survey to ascertain why the concessions expressly granted to Mexico in ALALC were not being used. The findings of the survey indicated that the main reason were the lack of competitive prices and of specific promotion, followed by transport problems, low standards of quality, failure to meet delivery deadlines, barriers set up by importing countries and the want of exportable surpluses. In the light of those findings, it was deemed desirable, first, to grant a number of supplementary facilities to remedy some of the drawbacks that had been enumerated, and secondly, to adopt corrective trade and industrial policies designed to increase the efficiency and productivity of particular branches of industry. It had therefore been decided to set up trade missions

composed of representatives from the public and private sectors with a mandate to develop trade and study the economies of the countries they visited in all relevant aspects. It had also been agreed to form a national centre for information on foreign trade, which would compile national and external data on the different aspects and problems of export trade, and furnish industrialists not only with information on the products that could readily find a market but also with advice on the best way in which to conduct their trade transactions. In addition, provision had been made for allowing exporters to send their goods by rail at particularly low rates, and measures had been taken to improve the standard and operation of port facilities. In that respect, a National Maritime Freight Commission had been set up to study and recommend means of reducing transport costs between Mexico and the countries to which it exported its goods.

278. With the aim of improving the financial sector, the Bank of Mexico had authorized commercial banks and financing agencies to make use of compulsory deposits held in the Central Bank to finance the production and stocking of goods for export. In addition, a programme of credit guarantees for export had been put into effect to cover payments made by importers in currencies that could not be converted or transferred, failure to settle accounts owing to the requisition, expropriation or confiscation of the debtor's goods or to Government decree preventing the importer from meeting his commitments, or again, failure to meet a commitment when the debtor is a public body.

279. Among the political decisions taken by the Mexican Government, special attention was drawn to the orders by the President for studies to be undertaken with a view to the complete remodelling of a number of industries that were thought to have potential comparative advantages in the international field. In compliance with those instructions, several projects had already been prepared, covering, among other sectors, the steel and textile industries. A recommendation made in virtually all the studies concerned the need for gradually reducing tariffs and abolishing import permits for the products of each industry in order to equip it to compete abroad. The transformation of the respective industries would be undertaken with the help of the State, whose financial backing provided a guarantee of success.

280. Another example of development policy for exports of manufactures was given by the representative of Brazil. Despite the substantial increments recorded in the last few years in that country, exports of manufactures were still at a low level. That might be ascribed to lack of tradition combined with a number of other factors such as the massive economic expansion which had increased domestic demand and absorbed all the output; limited experience, mainly in subsidiaries of foreign concerns; the exchange situation which was a frequent source of discouragement to potential exporters; and, lastly inflation which had made it difficult for Brazil to gain a footing on the external market where stable qualities and prices were required.

281. The official incentives recently given in Brazil aimed at setting permanent standards and thus increasing the capacity to export. The new measures covered a number of aspects. On the exchange side exporters were authorized to use 50 per cent of the foreign exchange earned by exports to pay for their imports of equipment and raw materials and to settle the debts they had contracted abroad; in the case of drawback operations, they were exempted from the obligation to provide exchange coverage; special exchange quotas were conceded prior to the export of manufactured goods when raw materials, parts or pieces had to be imported that were classified in the general category, protected by the drawback system or justified by special circumstances; and authorization was given to export manufactured goods on consignment.

282. With respect to tax exemptions, mention was made of the refund of import and consumption taxes on operations effected under the drawback system; exemption from the stamp tax on exchange operations for exports of manufactures; exemption from the consumption tax for exported goods; authorization during the fiscal years 1966, 1967 and 1968 to deduct the revenue deriving from exports of manufactured goods from profits subject to income tax; and exemption from sales and consignment taxes on exported industrial products. The last-named provision was enforced in the States of São Paulo, Minas Gerais, Rio Grande do Sul, Pernambuco and Guanabara.

283. With respect to financing the Foreign Trade Department of the Bank of Brazil granted credit for exports of manufactures of up to 80 per cent of their value, on the basis of payment at up to 360 days, it being possible to amortize 75 per cent of the balance in their financing at a later date. The Fund for the Democratization of the Capital of Enterprises (FUN-DECE) also operated in that field, and there were provisions for financing the working capital needed for the manufacture of export items.

284. As to investment, the existing legislation provided incentives in specific sectors, through executive groups directed by the Ministry of Industry and Trade. The Investment Committee of the Ministry of Finance included exports of manufactures among the sectors carrying most weight in economic development for purposes of the re-investment of extraordinary profits.

285. Other steps taken by Brazil had been to establish export credit insurance, to centralize the register of exporters in CACEX, and to simplify the requirements concerning the marking of export products.

286. In addition, a provision had been introduced — so recently that its results could not yet be evaluated — in accordance with which in the purchases abroad of crude petroleum and petroleum products effected by Petrobrás, at competitive prices, preference would be given to contracts which indicated that Brazilian manufactured products had been exported for a value equal to 20 per cent of the imports concerned.

287. The representative of Cuba said that the structure of the world capitalist system placed the underdeveloped countries at a disadvantage in world trade

and created the most serious obstacles to their exports of manufactures. In addition, there were the obstacles to regional integration, the prospects of which were doubtful.

288. The representative of Colombia expressed his Government's earnest desire to undertake a co-ordinated plan for the encouragement and diversification of exports. The main measures to give new impetus to the export sector included what were known as the "ley primera" contracts, under which there was an arrangement between the exporter and the Government, by virtue of which the State authorized the exporter to import raw materials, parts or components entirely free of duty. The same system was also applied to machinery and equipment. The system had worked well for raw materials and intermediate products, but not for machinery since the restriction imposed by the legislation, providing that the machinery must produce only for export, had led to a marked under-utilization of machinery, and consequently to a strong resistance to the system by the entrepreneurial sector. To remedy that difficulty exporters had recently been empowered to dispose of their foreign exchange earnings by paying amortization instalments, interests and installation costs on those machines to be used for new exports lines, increasing inventories or even for maintaining existing levels of exports. With respect to credit, interest and discount rates below the normal commercial rates had been established for exports, and loans had been arranged to finance working capital for industries producing for export.

289. The representative of Costa Rica stated that the Central American Governments had agreed to establish a committee for the promotion of exports, that would co-ordinate all activity in that field. In Costa Rica the relevant studies had been completed, and a committee was being established, consisting of representatives of the Government and of the private sector, with the basic aim of promoting exports. From the financial standpoint, the Central Bank was applying regulations to facilitate industrial exports through the financing of sales abroad, especially of consumer goods. That programme had proved most valuable, since it contributed to a better use of the working capital of the entrepreneurs, which in Costa Rica was the most difficult problem facing the industrial sector. He regretted that there was as yet no flexible machinery for encouraging exports of the capital goods that were being produced in Costa Rica.

290. The representative of Paraguay referred to the slow growth of his country's export sector. The free exchange policy instituted in 1957, the resulting relative monetary stabilization, the reduction in customs duties on many primary commodities, the facilities granted for the installation of export industries, the treatment accorded to the incorporation of capital and the infra-structural works expediting the internal transport of products were all excellent measures for the promotion of exports. Nevertheless, the small size of the domestic market and the existing low income levels necessitated a steady increase in the volume of external trade.

Exports should constitute the basic dynamic impetus to the growth of the productive system in the sector in which they originated. The growth of the external sector should be based on the creation of a technologically advanced structure of industry; on the State's active participation in guiding the economic development process; and on the creation of conditions that permitted the dynamic force of foreign trade to spread to the rest of the economy, progressively strengthening the domestic market.

291. The representative of the Inter-American Development Bank (IDB) described the regional system for financing exports of capital goods, established in 1964. Since it was the first experience of a regional nature in the world, it should be regarded as a pilot programme, which at present was limited in scope and would be subject to changes as it was gradually adapted to trade patterns in the Latin American countries. It was currently confined to the financing of capital goods and, from a geographical standpoint, covered only intra-regional trade.

292. The aims of the programme were to place the Latin American exporter in a position to offer the same terms of payment as his competitors through the expeditious marshalling of external resources so that financing was effected with a minimum of the Bank's own funds. The existing chaos in regard to amortization time limits, down payments and interest rates hampered the efficient operation of the machinery for mobilizing the system's external resources. The possibilities of selling to commercial banks in the most important areas (United States and Western European countries) the credit instruments generated by exports — or a share in them — were confined to the medium term. Credit for eight years or over compelled IDB to immobilize its own resources, thus rendering them unavailable for development financing.

293. Another factor that tended to limit the efficiency of the system of export financing established by the Inter-American Development Bank was the lack of credit insurance schemes to cover both political risks (mainly convertibility and transferability of payments) and commercial risks. While some progress had been made in solving the former, by certain State bodies in exporting countries, the cost of insuring commercial risks was still very high, and the possibility of trying to establish a regional scheme should be considered.

294. The Inter-American Development Bank had allocated 30 million dollars of its ordinary capital to the export financing system. To date it had provided five credit arrangements for a total of 12 million dollars (3 million each to Mexico, Brazil and Argentina, 2 million to Chile and 1 million to Peru). As might have been expected, initial difficulties had delayed the entry into operation of the system, but those difficulties had gradually been overcome.

295. Lastly, the secretariat gave a summary of the resolutions adopted by the Manufactures Committee of UNCTAD at its last session. The drafts submitted for its approval included a proposal to establish *ad hoc* working groups for industrial sectors, consist-

ing of representative of both the developed and developing countries, with the aim of determining the future trends of the trade in manufactures and the possibilities that could be created, by appropriate measures, of developing exports of those products of the developing countries whose competitive advantage and market possibilities justified their being given priority. At the same meeting it had been agreed that the first group formed would relate to forest products, including pulp and paper.

The small enterprise in Latin American development

296. The representatives of the various countries agreed in attributing a dynamic role to small industry in the industrialization process of the developed countries, and noted that because of the way its characteristics has evolved it had been able to adapt itself to a consolidated industrial system, in which it occupied an important place.

297. It was recognized, however, that the economic and social framework within which small industry had developed in Latin America differed from that in the developed countries, by reason of the shortage of capital resources and the fact that its starting point had been an artisan sector mainly concerned with the production of simple products requiring rudimentary manufacture, to meet the needs of regions far from the main centres of consumption and of inhabitants with low income levels.

298. At the existing stage of industrialization in the Latin American countries the small enterprise had concentrated its activities on what were known as the traditional industries, where it operated side by side with large-scale industry, and in direct competition with it. However, in some cases the small enterprise carried out highly specialized work, or production on such a small scale that it was of no interest to medium-size or large enterprises.

299. The participants agreed that a future industrialization policy must reckon with the important role that small industry might have to play from the social standpoint by facilitating the participation in the productive process of a substantial proportion of the labour force, particularly in those activities in which satisfactory levels of efficiency could be attained on the basis of rather modest capital investment. Some types of manufacturing activity would meet those conditions, such as the food industries, certain types of textile manufacturing, the production of clothing, furniture, etc.

300. Furthermore, it was pointed out that, with a modern approach to industrialization, it might be necessary, in countries where development was at an intermediate stage, to encourage small industry to extend its activities by supplementing the production of large-scale industry through sub-contracted work. On the basis of a greater degree of specialization in the production of certain items, small industry might come to play an important part in the industrial process. It had already begun to do so in the Latin American countries that were more highly industrialized.

301. The concern of the Governments for small industry had taken the form of piecemeal action usually reflecting a traditional and haphazard approach to the problem. In some countries action had been taken in terms of credit through the medium of financial agencies, while in others crash training courses at various levels had been given, the formation of co-operatives had been encouraged, and, in general, help albeit on a small scale, had been given in the form of services and advisory activities. In that connexion, the representative of Argentina stated that, in order to decentralize the manufacturing sector in his country more completely, the Industrial Bank had opened a credit line through a system of loans for the installations, expansion and improvement of small industry located in the hinterland. The representative of Brazil described the system that was being applied by the National Economic Development Bank which, in 1965, had set up the Executive Group of the Financing Programme for Small and Medium Scale Industry (FIDEME) to grant loans for the purchase of domestic or imported capital goods. Moreover, in the State of São Paulo, an agreement had been concluded between the Federation of Industries of the State, the University of São Paulo and the Delft Research Institute for Management Science (Netherlands) whereby an agency was to be set up to aid small industry.

302. In Peru, the policy governing small-scale industry was closely linked to the conditions prevailing in the local countryside and formed an integral part of the development plans for the whole country. Since 1961, most work has been done in that respect by the Development and Social and Economic Promotion Corporation of Puno, and was designed to strengthen the artisan and small-scale industry, in particular the family-type and rural activities. Other departmental development corporations — including the Rehabilitation and Development Board of Arequipa, Tacna and Moquegua —, also provided for special treatment for small-scale industry.

303. The representative of Chile drew attention to the importance of the small enterprise and the strategic role that sector could play in industrial development. It could help to bring about a favourable change in the structure of employment, eliminate certain forms of disguised unemployment and improve the regional structure of development within the country. To develop the small enterprise on more effective lines it was necessary to select the types of industries and their forms of activity. There would be three main lines of activities in small-scale industry: those involving work on the basis of sub-contracting; the manufacture of items requiring small production series; and the production of items special types and design. At the same time, it would be essential to improve the system of marketing the products manufactured by small-scale industry and to establish financing machinery that would enable the sector to make use of external credit. Action to encourage small-scale industry in Chile was undertaken by the Technical Co-operation Service, a subsidiary of the Production Development Corporation (CORFO), which had developed several programmes for providing assistance to artisan and small-scale industry. Its

action covers four main fields: technical assistance and technology; financial assistance, through medium and long-term credit lines; studies and projects; and information and co-operation services.

304. The representative of the Netherlands pointed out that it was important for industrialization in general and small industry in particular to improve distribution and marketing facilities. In his country, commercial firms often became producers of the same goods that they had begun by purchasing. Marketing accounted for a large proportion of a product's cost for the consumer, and the volume of capital tied up in the form of goods could be substantial. Furthermore a poor marketing system might give rise to monopolistic practices. In view of the importance of the subject, the delegation of the Netherlands considered that it was desirable for it to be discussed at the International Symposium on Industrial Development.

305. Since 1963 the Venezuelan Development Corporation had been carrying out a plan for the loan of fixed assets with the option of purchase. In that way, entrepreneurs were given an opportunity to build and fully equip small plants, with the sole proviso that they contribute the necessary working capital for the early stages of production. A programme for the creation of industrialized areas was also being implemented.

306. The delegation of Mexico described the operation of the Guaranty and Development Fund for Small and Medium Industry (Fondo de Garantía y Fomento a la Industria Mediana y Pequeña), managed as a trust fund by Nacional Financiera S.A., and established to meet the credit requirements of small and medium-scale entrepreneurs, through the operations of private credit institutions. The capital of the Fund was constituted by Federal Government contributions, profits accruing to the Fund itself, and a recent loan from the Inter-American Development Bank (IDB). The types of credit granted were known as "refraccionarios" and "de habilitación o avío", the former being intended for the purchase and installation of machinery and equipment, and the latter to finance purchases of raw materials and other inputs, while there was also a third type of credit which combined both those categories. The Fund was authorized to underwrite and purchase securities issued by small and medium-sized enterprises. The processing and manufacturing activities that had benefited most by the credit operations in question were the food, textile, footwear, metal-transforming and chemical industries. Credit amortization periods ranged from one to five years, thus allowing short-and medium-term requirements to be covered. One feature of their allocation that deserved special mention was the preferential treatment granted to enterprises established outside the existing major industrial areas, as a means of promoting the decentralization of industry.

307. The delegations of Guatemala and Honduras stressed the importance for their own countries of the adoption of adequate financing schemes aimed at alleviating the grave problems confronting small-scale industry, and agreed that technical and financial assistance from international agencies was needed. The representative

of ILO said that technical assistance should be closely linked to the credit facilities granted.

308. Since the definition of small-scale industry was not exactly the same in all countries, the programmes covered different fields of action, according to the approach adopted in the country concerned. In some instances emphasis had been placed on the development of artisan industry and small factories; in others, the former was excluded, and the definition was broadened to take in medium-scale industry. Some Governments had directed their efforts towards the development of local arts and crafts to supplement tourist trade plans. That branch of activity was extensively developed in Ecuador, Mexico and Peru, where exhibitions were organized, folk-art museums of considerable appeal to tourists existed in the various provinces, and samples of national craftsmanship had been sent abroad with a view to expanding the market for such articles, which was currently formed mainly by tourists.

309. It was pointed out that little or no statistical data on small industry could be gleaned from the industrial censuses taken in the Latin American countries, since their coverage did not extend to most traditional cottage industries, which could not be classified as manufacturing activities. In that connexion, stress was laid on the necessity of encouraging technical agencies and statistical offices in the Latin American countries to take action whereby the situation could be radically improved. A quantitative assessment of the importance of small industry would make it easier to establish principles of industrial development policy for that stratum.

310. The delegation of Brazil said that for the most part the studies carried out on small enterprises in developing countries had been confined to the entrepreneurial aspects of the problem. Although some satisfactory results had been achieved, they were not yet sufficient, and the time had come for the Latin American countries to begin seeking sounder bases on which the small enterprise could be assigned its rightful place in over-all development planning efforts. ECLA should undertake over-all and sectoral studies by means of which criteria could be established for selecting the small industries that ought to be encouraged in developing countries. The views thus expressed by the delegation of Brazil were endorsed by the delegation of Paraguay.

311. Lastly, it was reported that a Seminar on Small Industry was scheduled to be held at Quito in the second half of the current year, under the sponsorship of ECLA, the United Nations Centre for Industrial Development and the Bureau of Technical Assistance Operations (BTAO), at which an attempt would be made to review at the regional level, for the first time in Latin America, the present situation of small industry in the various countries. At the same time, it would afford an opportunity for comparing notes on their experiences whereby the participating countries would be assisted in the task of formulating a policy for that sector of industry, which might eventually acquire a significant regional content.

312. The discussion of the role of the small enterprise in the development of Latin America would comprise

such important questions as the part that should be played by that sector in generating employment opportunities within the industrial development process; the types and branches of small-scale industry that should be encouraged in view of their technological and economic characteristics; the most appropriate technical assistance objectives and instruments; the possibilities of adapting special technologies to the characteristics of the sector, within the limits set by modern technique; the improvement of basic statistics; and the research that should be conducted in the field in question.

313. Some delegations put forward suggestions in connexion with the provisional agenda for the Quito Seminar, of which note was taken by the secretariat.

D. PROBLEMS RELATING TO THE TRANSFER OF TECHNICAL KNOW-HOW, APPLIED TECHNOLOGICAL RESEARCH AND TECHNICAL ASSISTANCE ²⁵

The transfer of technical know-how from abroad and the adaptation of processes and machinery to Latin American conditions

314. The participants considered that the prospects of expansion for the various industrial sectors in Latin America involved not only high investment requirements, but also the difficult task of absorbing new techniques. It was pointed out that the introduction of new techniques and the general need for technological improvement would affect not only the new industries, but also many of the traditional industries, in order to achieve a better use of the capital invested in them and encourage the modernization and rationalization that were essential for low costs and the consequent stimulus to consumption. That would give rise to difficult problems of many different types, which included the transfer of technical know-how from abroad, either as an accompaniment to foreign investment or through licensing agreements.

315. Consideration was given to two aspects of the transfer of technical know-how from abroad: (a) levels of transmission, and (b) methods of transmission.

316. With respect to the former, it was stated that in relation to all stages of the development of an industrial project—from the feasibility study to the actual operation of the plant, including the intermediate stages of the preparation and evaluation of the investment project—there were technical and economic aspects whose technological levels should be analysed carefully in order to permit a diagnosis of the levels of transmission required only at certain stages, since in some countries several of them could be covered satisfactorily by the local technical personnel.

317. The methods of transmission could be “closed-circuit”, open or intermediate, according to the degree of dissemination as a result of the transfer of technical know-how in the industrial milieu of the country that received it. There had been many cases where know-

how had been transferred on a “closed-circuit” basis, i.e., from one enterprise to another. When it was transmitted from a foreign parent company to a local branch, the benefits were confined to the enterprise which received it, and that hampered the process of disseminating the know-how throughout the local industrial milieu and the raising of the general technological level. The closed-circuit method of transmission contributed, among other factors, to the maintenance of a structure of industry reflecting sharp technical disequilibria, a phenomenon known as “technological dualism”.

318. It was agreed that although the limited circulation of technological knowledge was understandable and unavoidable in the case of brands and patents of commercial value, the same situation often arose in other cases where such a commercial factor did not enter into the picture.

319. The foregoing problem raised the question of how far, in Latin America's circumstances, it would be appropriate to leave the door wide open for the transfer of know-how from abroad through licensing agreements, thus channelling it through individual enterprises, when in many cases it could be imported on a collective basis (either for industry as a whole or for specific lines of industrial production) through national technological or technical assistance institutes, which would ensure that the techniques brought in from abroad were disseminated throughout the industrial sector. Such an approach might acquire great importance in those cases where payments in foreign currency in respect of licensing agreements might aggravate the shortage of available resources, and constitute, up to a point, a contribution by the developing countries to the financing of technological research abroad.

320. It was also pointed out that industry very often tended to regard licensing agreements as a means of improving its low technical and organizational level in general, not merely in respect of strictly specialized production techniques. In that event, the domestic enterprise concerned might prove unable to assimilate and make proper use of the specialized know-how received from abroad, with the result that difficulties frequently arose between the firm exporting the know-how and the enterprise receiving it, quite apart from the expenditure in foreign currency entailed by such arrangements.

321. In connexion with methods of transfer envisaged from the standpoint of securing wider dissemination of know-how, attention was devoted to the problem of deciding how it should be channelled, or, in other words, seeing what advantages could be obtained if such know-how were assimilated on a collective basis by branches of industry, so that duplication of effort could be avoided and a higher level of economicity could be reached in a setting of industrial co-operation. It was suggested that the prospects thus opened up should be studied, together with methods of organizing and institutionalizing the activities involved. The delegations of Brazil and Mexico proposed that more satisfactory formulas should be sought whereby technical know-how could be obtained on less onerous terms. In the case of France, as the delegation of that country stated, the public

²⁵ See annex III for the list of documents on which the discussions were based.

administration controlled licensing agreements between French companies and foreign firms, and was empowered to repudiate them or to require that the remuneration stipulated should be reduced.

322. Another question discussed (not only in connexion with licensing agreements, but as a more general problem) was that of adapting techniques and equipment obtained from abroad to the particular conditions prevailing in the country where the investment was effected, from the standpoint of relative costs of capital and labour, plant sizes and installed capacity, and adjustment of the quality and characteristics of the product concerned to the requirements of local markets. In all those respects, innumerable unhappy experiences had been witnessed throughout Latin America, from which a lesson should be learned as to the lines along which the region's future industrial development should be guided. The delegation of Trinidad and Tobago pointed out that the modern techniques devised by the more developed countries were capital-intensive and absorbed little manpower, and that those characteristics were not consonant with one of the objectives of industrial growth — to increase the volume of employment. The above-mentioned delegation expressed the wish that recommendations should be formulated for the intensification of studies bearing on the adaptation of imported technologies to Latin American conditions.

323. For the selection of techniques and machinery and their adaptation to industrial conditions in Latin America, the first prerequisite was to have full and detailed information on the technologies available and the second to possess the technical and economic knowledge to evaluate those technologies and to take decisions.

324. The representative of Peru stressed the importance of collecting and compiling the technological data available within and outside the region. Likewise the representative of France pointed out that it was necessary to have access to up-to-date information and technical literature to be able to assess the current state of technology. France had established five documentation centres for that purpose, two of which were in Latin America (Caracas and São Paulo).

325. It was explained that the technical and economic ability to take decisions was particularly important in the discontinuous-process industries (metal-transforming, textiles, etc.) since there was seldom any serious difficulty in obtaining equipment that was suitable for different degrees of automation and capital intensity, and the main problem was the correct choice, in order to take advantage of the flexibility of the machinery and the possibility of adapting it to the technical and economic conditions of the industry. In view of the flexibility of the discontinuous processes, consideration should be given to the opportunities available in some areas of using what had been termed the intermediate technologies. In the continuous-process industries, on the other hand, the designs available and the operational characteristics sometimes prevented adaptations to Latin American conditions. However, the rapid technological progress in the countries that produced such machinery had the effect that certain processes became out-of-date

very rapidly, which meant that possibly new machinery might appear on the market that would make it economically possible to use equipment involving small scales of production. It was agreed that to ensure a more rapid absorption of technical know-how from abroad it would be necessary to increase the skills of the local labour force, which could be done not only within industry, but also at educational centres. The representative of Brazil stressed the need to produce highly trained staff through postgraduate courses, and referred in particular to the catalytic processes and chemical reactors in the chemical engineering field, which were of major importance in the development of the petrochemical industry.

326. It was agreed that the better conditions created by improved technical training would help to ensure an expansion of technical know-how in the Latin American countries. In that connexion the experience of Brazil was encouraging, with respect to improvements in the production of machine tools, and of certain alloy steels, and in the manufacture of antibiotics, while in Mexico the HyL process of direct reduction in steel-making was a notable achievement.

Technological research of industrial application

327. Most of the industrial progress of the developed countries was known to be the result of technological research. Such research activities tended, on the contrary, to be scarce in the countries where they were most needed to improve the exploitation of natural resources, adapt the machinery and technology of the industrialized countries to local conditions, raise product quality and lower production costs. It was difficult to measure the direct relation between the results of research and its cost, since in estimating the latter allowance should be made for the money spent on unsuccessful projects on which little information could be obtained. But if the indirect benefits accruing to society were taken into account, research apparently represented an investment that yielded high returns. Broadly speaking, it might be stated that no research institute in the developing countries could cover its costs with the result of its work, and that all of them needed large subsidies that should be provided almost entirely by the Government concerned. Consequently it was necessary to arouse the enthusiasm of the Governments, international institutions, universities and industry itself if technological research was to be promoted.

328. In view of the broad field covered by industry, even in the small countries with little industrial development, it was essential that there should be at least one institute and laboratories dedicated to the service of industry in general and capable of being useful to a wide range of productive activities. Once the country had made sufficient progress in a number of industrial sectors with a substantial body of technological problems, it would be justifiable to set up sectoral technological research institutes. The main functions of such institutes would be: (a) the systematic survey of natural resources and their development; (b) the adaptation of domestic raw materials for non-conventional uses; (c) the tech-

nical development of production processes; (d) the application of new processes on an industrial scale after the stage of experiment in pilot plants had been concluded; (e) the selection or design of the machinery to be used in industry; (f) economic feasibility studies for industries; (g) the provision of general services to industry, such as analyses, quality and standard control and information on possible solutions to problems that arose and on the progress being made in other countries; (h) the provision of technical assistance to industry through visits to plants; (i) the training of scientific and technical staff for industrial laboratories, etc.

329. As regards organization, the institutes could be (a) an integral part of a university, (b) semi-autonomous bodies linked to a university, (c) state bodies, or (d) private institutions, belonging either to a non-profit body working under contract, or a sectoral industrial association. All those systems had their advantages and disadvantages. The latter included, for university institutes, the tendency to favour programmes likely to be more useful from the teaching standpoint, and the difficulty of financial administration when university councils or corresponding bodies controlled the staff and the programmes. With sectoral research associations, all too often the programmes were confined to problems common to the industry as a whole, to the exclusion of those that might give some competitive advantage to a particular firm sponsoring a programme. Whatever organizational system was adopted for an institute of applied research, it would be essential to establish links with the planning agencies and with the bodies representing industry, to ensure that the work done would be directed towards the basic problems of economic development.

330. In several Latin American countries there were applied research institutes working under contract for industry. In others the universities were carrying out some kind of research, or providing some of the services listed above. Argentina was the only country in which the research policy pursued by the Government (through the National Institute of Technological Research) encouraged the formation of sectoral research associations, which received subsidies.

331. Two sectoral studies on research programmes were submitted to the Symposium, one on the pulp and paper industry and one on the steel industry. Those studies examined, in relation to various countries in the region, the problems affecting industry and the means taken to deal with them. Because of the wide range of problems and countries covered, the studies could serve, by way of illustration, as the basis for dealing with many other productive activities where the problems were of a similar nature. The points to be considered included: what fields the institutes should cover, and what should be the order of priority in their functions when there was a shortage of funds or staff; within what type of organizational and institutional framework the institutes should operate, and lastly, what were the prospects of international co-operation (which would be easier to obtain, and more effective, if the institutes restricted their activities to a given industrial sector).

332. Thus it could be concluded, from the documents submitted by the secretariat, that applied technological research could be regarded as a fruitful investment that was much neglected in Latin America.

333. Several representatives referred to the applied technological research institutes operating in their countries. The representative of Brazil stressed the importance of the specialized institutes in specific industrial sectors, e.g., the Technological Research Institute of São Paulo, which was mainly concerned with the metallurgical industries, and the new institute for research on machine-tools which was to be established shortly. The representative of Mexico named seven institutes for general applied research in his country, and pointed out the dispersion of efforts this implied, since there was no programme or national authority of co-ordination.

334. With respect to the type of research that could be conducted in Latin America, consideration was given to both basic or pure research and applied research. In view of the shortage of human resources for research in nearly all countries of the region, it would seem reasonable to confine the activities to applied research which had the adequate financial backing and to import the results of most of the basic research. Basic research liable to play an important role in the training of scientific personnel for research activities could also be carried out.

335. At the same time, in relation to the institutes' activities, importance was ascribed to the function they might fulfil as personnel training centres, both in industry itself and in research work in general. It often happened that work on a specific research project widened the horizons of a scientist or technician and enabled him to conduct research in many other fields. Among the possibilities for using the institutes as training centres, post-graduate courses of varying duration were suggested.

336. There were certain industries manufacturing complex products or equipment, such as electronic items, which should be marketed, in general, on the basis of quality certificates. Such quality control could be established systematically as the terms of reference of specific research institutes; the same would apply to precision-engineered equipment and parts, for which similar certificates could be issued.

337. Several delegates said that industries — especially new plants — in their own countries often imported the knowledge and results of research which could have been carried out locally, thereby incurring heavy expenditure of foreign exchange. In order to reduce that expenditure, it was imperative to reinforce and enhance the prestige of the existing research institutes in the region.

338. With respect to international co-operation, in particular from the more advanced countries, it was suggested that, in addition to using it to strengthen the Latin American research institutes, it could help to identify problems affecting development plans and to check some of the results obtained by researchers in the region. Several representatives appealed to the more advanced industrialized countries to give more attention to that point. The representative of Mexico said that his country

had received an offer along those lines from institutions in the Netherlands and the United Kingdom.

Technical assistance for industrial development

339. The growing importance accorded to technical assistance, both in its bilateral and in its multilateral forms, was clearly evidenced in the discussions and statements of the participants. According to the estimates presented for consideration at the Symposium, official expenditure under that head in 1964 would seem to have amounted to about 18 per cent of the total economic assistance—financial and technical—provided by the Governments of the countries members of the Organization for Economic Co-operation and Development (OECD).²⁶

340. Cases in point were afforded by Belgium, France and the Scandinavian countries, where the resources allocated to technical assistance had come to absorb more than one-third of total expenditure on bilateral economic co-operation. In France the trend was particularly striking, the proportion in question having reached almost 40 per cent by 1964, whereas in 1961 it had been only 21 per cent.

341. Another way of measuring the magnitude of the technical assistance effort was to consider the number of experts and teaching personnel engaged in work of that type throughout the world. According to data submitted by the Netherlands delegations was estimated that the United Nations and other multilateral agencies provided about 8,000 specialists, and the Governments of countries members of OECD approximately 82,000, of whom 38,000 were teachers, mostly French.

342. Over 96 per cent of those 82,000 specialists came from Belgium, France, the United Kingdom and the United States, while the centrally planned economies supplied some 8,000 experts.

343. In addition to the foregoing labour force provided by the public sector, the contribution of private enterprise could be estimated at about 100,000 specialists, of whom a relatively high proportion were working in Latin America.

344. The data available on the amount of technical assistance received by Latin America, both in absolute terms and in relation to other regions, were in many instances fragmentary and incomplete. But they sufficed to show that the share falling to the region was not commensurate with its requirements.

345. The Latin American countries²⁷ had received about 11 per cent of the total technical assistance resources officially provided by the group of countries referred to above, whereas their peoples represented

15 per cent of the total population normally receiving assistance from the industrialized countries concerned. According to the same estimates, barely 4 per cent of the experts and advisory service personnel discharged their functions in Latin America. Of the total amount of official technical assistance received by the region between 1963 and 1964 on a bilateral basis, about 80 per cent came from the United States, which, in those same years, contributed approximately 70 per cent of the advisory service personnel assigned to the region and roughly half the training fellowship and funds. The United States' expenditure on technical assistance in the Latin American countries through AID had reached a cumulative total of nearly 21 million dollars during the financial years 1962-66. Twenty-seven industrial development experts were now stationed in AID offices in ten countries of the region, while the provision of services of experts on a contract basis between 1961 and 1965 amounted to 574 man-years. During the same period, there were 879 fellowships immediately connected with industrial development problems. Moreover, reference was made to the considerable aid provided in the field of manpower training and, in general, in human resources planning.

346. It was reported that the French agency responsible for the organization of fellowships in France (ASTEF) had, since its establishment, granted 12,800 fellowships, nearly 4,000 of which to Latin Americans. The figures for 1965 had been about 2,900 and 870, respectively. In 1965, ASMIC—a French agency responsible for sending technical missions abroad—had organized 99 missions to Latin America, comprising a total of 165 experts, which represented about 40 per cent of the total number of missions sent all over the world.

347. Two of the five technical documentation centres sponsored by ASMIC had been set up in the region, one at São Paulo and the other at Caracas.

348. Although the statistics available for the Netherlands were not very accurate, it was stated that, under its official technical assistance programme, there had been about 216 experts working in different parts of the world in 1964; moreover, a large number of the specialists from that country's private entrepreneurial sector were serving in Latin America.

349. The Netherlands technical assistance budget for 1966 amounted to some 38 million dollars. Since the budget for total economic assistance was to be increased by one-third, there were good prospects that the Netherlands would considerably intensify its efforts in connexion with the provision of technical assistance in the immediate future.

350. Other countries had also steadily increased their technical aid in recent years. A case in point was the Federal Republic of Germany, which was especially active in the provision of personnel for technical and vocational training.

351. Sweden's and Norway's technical assistance programmes had not yet been extended to the region, while Switzerland, although active in aiding Latin American projects in the agricultural sector, had not extended its operations to industry.

²⁶ According to the statistical data in document L.42 and in the Report for 1965 presented by the Chairman of the Development Aid Committee of the Organization for Economic Co-operation and Development, the group of countries referred to, which normally accounts for about 90 per cent of the assistance received by the developing countries, is formed by Austria, Belgium, Canada, Denmark, the Federal Republic of Germany, France, Italy, Japan, the Netherlands, Norway, Portugal, Sweden, the United Kingdom and the United States.

²⁷ Not including Cuba.

352. Among the countries with centrally-planned economies, the Soviet Union was noted for the volume of resources devoted to technical assistance, which it had allocated mainly to Cuba, with the possibility of including other countries in its future programmes. It was noted in that connexion that help in the large-scale training of national specialists occupied an important place in the Soviet Union's co-operation with the developing countries. One of the main features of that aid was the establishment of centres of higher and secondary education in those countries for the on-the-spot training of national specialists. The Soviet Union also granted a large number of fellowship in higher education to nationals of the developing countries.

353. Multilateral technical assistance was provided by the United Nations through its specialized agencies, under the regular and expanded programmes, in the form of experts and advisers to Governments and of various training activities, and also through the Special Fund and the recently created Special Industrial Services (SIS). The three programmes had now been merged in order to co-ordinate their activities.

354. It was noted that although the volume of technical assistance as a whole had considerably increased in recent years (from about 87 million dollars in 1962 to about 105 million in 1964), the share going to Latin America had declined in absolute terms and had also decreased sharply in relative terms, from 24 per cent of the total in 1962 to 17 per cent in 1964.²⁸ It was stated, in explanation of that trend, that in other regions, such as Africa, needs for such assistance were so vast and urgent that they could not be compared with those of, for instance, Latin America.

355. The International Labour Organisation (ILO) had been particularly active in the region in its own field, and had provided substantial aid in relation to manpower training and, in particular, to the general raising of productivity and efficiency. In that connexion there was a special reference to the work of the training centre established by the ILO in Turin, Italy. Similarly, there was mention of the work done by the national productivity centres in Latin America, which had contributed to the considerable progress achieved in that field.

356. The International Atomic Energy Agency (IAEA) had provided advisory services on the use of radio isotopes in industry, which were particularly useful in the food, paper, textile, plastics and chemical industries, to name only a few. The World Health Organization (WHO) had done useful work relating to the health of workers, particularly in industry. In that connexion the WHO stressed the importance of paying due attention to the need to improve substantially the health conditions obtaining in Latin America so that work accidents and occupational diseases would not continue to affect the health of workers and to hamper the economic progress of the area, as they were now doing. Also mentioned was the need for international development agencies to include in each new project control measures aimed at

preventing injury to the health of workers and the resulting problems for the community. To those ends, the technical advice of WHO was available.

357. There was broad agreement that the observations made on the relative inadequacy of technical assistance in general to Latin America were equally applicable to the distribution of that assistance among the different fields of economic activity. In fact, the information available indicated that in Latin America industry received less attention than other sectors such as agriculture and education. In 1964 the total number of experts (excluding teachers) paid by public funds from the OECD countries and doing work related to industry amounted to less than 17 per cent, while those in the agricultural and educational sectors constituted about 22 and 20 per cent respectively.

358. Following the same line of thought, concern was expressed at the shift that had been announced in United States policy, whereby increased assistance would be given to agriculture, health and education. International co-operation in those fields was undeniably of great benefit, but the apparent reservations with respect to the provision of aid for industrial development and the private sector were giving rise to anxiety. The representative of the United States said that these two sectors supported the industrial sector and, at the same time, were in need of its support. The growing interest in agriculture would be related to the increase in food production and in agricultural productivity, since industrial development would be adversely affected if this sector fell behind, as it would if inadequate attention were paid to the improvement of health and education.

359. One source of the concern felt for the relatively small amount of technical assistance extended to the industrial sector was to be found in the case of Brazil, which was virtually without aid of any kind from the United Nations at the present time.

360. By virtue of those considerations, there was a consensus of opinion that the volume and nature of the technical assistance made available to the Latin American countries for purposes of industrial development should be revised in the light of the vital importance attaching to industrialization as a means of achieving more rapid economic growth.

361. With regard to patterns of technical assistance, despite the frequent preference shown by most countries for bilateral forms of such aid, the view was expressed that the problem should be analysed with very careful regard to the special advantages offered by multilateral procedures, in terms of more efficient utilization of the resources made available, possibilities of directing the assistance provided to better purpose, and, above all, less recourse to "tied" forms of aid, etc., although it was recognized that a direct relation between two Governments might also have its advantages, particularly in respect of more direct communication between the parties. Special mention was made of the case of Mexico, where the technical assistance for industry provided by the United Nations accounted for 73 per cent of the total, only the remaining 27 per cent being of a bilateral type. A compromise was represented by a practice which

²⁸ *External Assistance for Industrialization*, (E/CN.11/I and NR/Ind.Conf./L.8).

was becoming widespread, and which consisted in *ad hoc* co-operation on the part of several donors for the purposes of one or more projects (aid consortia), as well as by the channelling of bilateral contributions through multilateral agencies, although, as in the previous case, the identity of the donor country would still be maintained, and, in addition, clearly-defined objectives would be established with regard to the fields of application of the assistance. It was considered that such a procedure would combine some of the advantages inherent in both bilateral and multilateral types of aid. A case in point was that of Canada, which channelled all its financial assistance to the region — and the technical assistance that went with it — through the Inter-American Development Bank (IDB).

362. The participants unanimously agreed that it was more satisfactory for both donors and recipients if technical assistance for industry were requested and accorded as an integral part of a sectoral development programme. In other words, the “programme approach” definitely took precedence over the “project approach”. Furthermore, it might perhaps be useful to explore a middle way, such as the provision of technical assistance within the framework of a given branch of industry. That would facilitate the adoption of a continuing policy designed to improve operational conditions in the industry concerned, which would cover training at all levels, internal technical and administrative organization, modernization and rational selection of equipment, and technological research, all within the framework of sectoral programmes based on prior diagnoses of the existing situation.

363. Something was also said of the Latin American countries experience in connexion with their administrative machinery for the determination of assistance requirements, the search of new sources, and, once assistance had been secured, its co-ordination and effective channelling to its recipients.

364. The experience of Mexico was enlightening in that respect. Although the assistance received, both multilateral and bilateral, had proved very satisfactory, it could be used to better advantage, as the delegation of Mexico pointed out, through institutional and programming improvements which were the responsibility of the recipient country.

365. It was generally agreed that the data considered warranted the conclusion that the share of industrial development in international technical assistance programmes — whether multilateral or bilateral — had not been commensurate with the importance assigned to the expansion and modernization of the industrial sector in Latin America's development plans.

366. Mention was made of some of the factors that were regarded as doing most to determine the situation described, and suggestions and proposals were also formulated with respect to the right approach to adopt, and to possible methods of solving the problems involved.

367. It was pointed out, for example, that the handicap deriving from the general principle that technical assistance in the form of a donation could not be assigned

to profit-making private companies might be overcome by the establishment of a revolving fund, in which the recipient enterprises would deposit a limited sum, in national currency, in return for the services rendered, thus feeding the fund, which would be used to finance other technical assistance operations in industry.

368. It was also noted that technical assistance was often needed for a whole industrial sector rather than strictly in relation to any one enterprise. In such cases, the requisite assistance could not be satisfactory programmed without a detailed preliminary survey of the sector and a diagnosis of its problems and difficulties. Assistance provided through individual experts, engaged for *ad hoc* missions without adequate briefing on the data and problems relating to the sector as a whole, was virtually ineffective. The detailed prior study of the sector required could not as a rule be carried out at the national level, much less by individual experts concerned. Moreover, in many cases, the problems calling for technical assistance were of a multiple and inter-related character, a fact which suggested the advisability of using groups made up of specialists in different fields, under the direction of a single leader, rather than individual experts. Such a procedure was seldom applied, either by the countries extending bilateral assistance or by international agencies, because it presupposed the availability of a large pool of experts on permanent contract, besides depending on the previous work of analysis and diagnosis mentioned above.

369. In support of the foregoing contention, a few cases were cited in which the activities of such “unattached” experts had been completely ineffectual. It was generally agreed that effort were required at both ends of the problem. On the donors side, it was essential that the expert should enjoy the support of prior studies, continuing analytical research on the field in which he was to operate, and close contact with such bodies as ECLA, the Centre for Industrial Development and others responsible for carrying out the analyses in question. Similarly, from the standpoint of the recipient country, the expert's authoritative knowledge should be built into a clearly-defined development programme, so that his activities could be given continuity and turned to proper account.

370. Another factor passed in review was that relating to the restrictions which precluded the discharge of executive and directive functions by technical assistance experts, specially in private enterprise. There was a consensus of opinion to the effect that the impossibility of handing over to international experts even a part of the entrepreneurial activities to be undertaken on behalf of local private capital, such as, for instance, technical management, either led the developing countries to reject many feasible industrial projects, or compelled them to resort to groups of foreign investors, which provided their own technical and administrative staff.

371. Lastly, consideration was given to the special dependance of the development of many branches of manufacturing — particularly the chemical industry — on processes and equipment covered by international patents belonging to large industrial consortia. It was

agreed that international technical assistance agencies — including those of a multilateral character — should incorporate licensing arrangements in their regular operational procedures, and should assume responsibility for their distribution.

372. It was recognized, however, that many such groups pursued the policy of refusing licenses to third parties and holding their patents in reserve for possible undertakings of their own. Even in that case, it was suggested that the promotion of a project by an international agency would make it possible to obtain more advantage terms for the country in which the projects was to be executed.

E. THE INTERNATIONAL SYMPOSIUM ON INDUSTRIAL DEVELOPMENT AND INDUSTRIAL DEVELOPMENT IN LATIN AMERICA

373. The discussion opened with a statement made by the representative of the United Nations Centre for Industrial Development, in which he described the action already adopted in relation to the International Symposium. Such action included proposals regarding the subjects to be discussed at the Symposium, as set forth in the *Progress report on symposia on industrial development*,²⁹ which were submitted for the consideration of the Governments of States members of the United Nations; a request that the industrialized countries should co-operate in the International Symposium and prepare documents on specific problems to be dealt with there; and the preparation by United Nations agencies of general studies of international scope in connexion with the meeting.

374. It was considered that the consensus of views at the Latin American Symposium on Industrial Development regarding the objectives and organization of the International Symposium, in conjunction with similar data forthcoming from the Symposia for Asia, Africa and the Middle East, should serve to enable the United Nations Centre for Industrial Development, at its next session, to adopt decisions consistent with the problems and hopes of the Latin American countries in regard to industrial development.

375. An unofficial working group met for the purpose of exchanging ideas on the subject of Latin America's participation in the proposed International Symposium. It dealt, essentially, with the three following subjects: the central aim of the International Symposium, the agenda most suitable for the achievement of that aim, and the study and possible definition of a concerted Latin American position at the Symposium. The representative of France added a fourth point relating to documents.

376. In regard to the objective and nature of the Symposium, two alternatives were analysed. In the first, the 1967 meeting would be in the nature of a simple exchange of national experiences and, in general, of views concerning the obstacles to the acceleration of industrial development. According to the second alter-

native, it would be a forum more specifically designed to define the international co-operation policy needed to speed up industrialization in the developing countries.

377. After the two alternative possibilities had been evaluated, it was agreed to support the second, i.e., the concentration of discussion on the requisite measures for international co-operation; the aim of the Symposium would thus be to review the various instruments of international co-operation for the purpose of expediting industrial development, and to suggest new forms of co-operation, should it deem them necessary and expedient. Accordingly, an exchange of information on experience at the national and regional levels should be taken as part of the background material relating to the problem. The relevant documents, in which the experience in question would be described and analysed, would be circulated beforehand, although they would not be discussed at the Symposium, but would be used solely for purposes of reference and illustration.

378. Another subject which, in the opinion of the group, ought also to be explicitly excluded from the objectives of the International Symposium was the presentation and discussion of methodologies for the programming of industrial development in the developing countries. However great the interest and value attaching to the exposition of methodological problems, and to analytical considerations regarding industrial development, or, more specifically, alternative industrial development policies, it was felt that such topics were alien to the central purpose of the International Symposium, which was to analyse international co-operation policy in the field of industry.

379. In conformity with that aim, the delegations ought to be in a position to adopt the resolutions and assume the commitments that might be called for at the conclusion of the proceedings of the International Symposium. Thus, each country should appoint delegations whose status was such that they would be fully accredited to speak and, if necessary, take decisions and adopt recommendations in the name of their respective countries.

380. The next step was to define the nature of the agenda, since it stemmed from the objectives thus established. It ought to be focused on international co-operation, excluding both discussion of experience at the national level, and purely methodological and analytical questions. It might therefore consist of three major sections. The first would relate to analysis of the specific problems connected with the acceleration of industrial development, such as transfer of know-how, credit facilities, training, etc. The object would be to formulate a diagnosis of the problem, so as to pave the way for discussion of the relevant international co-operation measures. The second part, concerned with the major branches of industry, would comprise diagnoses of each of those branches at the world level, covering a balance-sheet of current and future supply and demand, an indication of world trade characteristics and trends, and an account of the most important basic problems obstructing the development of the branch

²⁹ ST/ECLA/Conf.23/L.10.

concerned. All the material would be presented in such a way as to reveal and compare the situation of each of the major developing regions.

381. In view of the short time available for discussion at the International Symposium, the description of the position in each branch of industry should be as concise as possible, taking the form of a diagnosis of the problems and conditions most relevant for the definition of the requisite and feasible international co-operation. The whole varied range of situation in the different countries, as well as detailed analyses of the technical and economic characteristics of each branch of industry, could be included in the background documents, but should on no account be reflected in agenda items for discussion.

382. It was considered most important to include in the agenda the analysis of the situation in the main branches of industry, as a first step towards defining a sectoral policy of development at the international level, which would be of decisive importance not only for the orientation of international technical and financial co-operation, but also for the gradual reorientation of the international trade flows that the Members of the United Nations had begun to promote in the United Nations Conference on Trade and Development.

383. The third part of the agenda would be dedicated to discussing the measures of international co-operation themselves, as the result of the discussion in the two previous sections. The aim would be to review recent experience in the various developing regions, in relation to international co-operation in the form of technical assistance, measures of training at all levels, the transfer of technological know-how, credit and financing, investment of public and private capital, etc. That review, set against the analysis and definition of problems at the level of the general problems in the first part of the agenda and at the sectoral level in the second part of the agenda, would make it possible to define the necessary corrections and expansions in international co-operation in the field of industrial development, and to facilitate the discussions concerned.

384. Lastly, largely as a consequence of the agreement that existed with respect to directing the agenda towards international co-operation, it was considered desirable to explore the possibility of preparing or defining a common stand by the Latin American countries in relation to the items to be dealt with by the International Symposium. The view taken was that if such a common stand could be worked out, it would be extremely useful for the purpose of helping to ensure that the International Symposium would reach effective conclusions from the standpoint of international co-operation, and thus accelerate Latin America's industrial development. For that purpose, the working group believed, the most effective formula might be for the Latin American Symposium to agree to ask the ECLA secretariat to undertake, by means of informal consultation at the technical level with the member Governments of the Commission, to study that possibility and determine what such a common stand could be.

385. ECLA should aim at drafting a document that would analyse the various obstacles to the acceleration

of industrial development in Latin America and define the measures of international co-operation that could usefully be taken to deal with such problems. The possibility of outlining a common stand for all the Latin American countries would be considered in a provisional form in the report, in the light of the conclusions at which the secretariat would have arrived in its analysis of the problems, and of the measures of co-operation in force or envisaged, in accordance with the industrial policy and the policy on co-operation pursued by each country in the region. The report could be analysed at the twelfth session of ECLA, to be held in May 1967 at Caracas, in a special committee that would make the necessary recommendations to the plenary. Since it was very likely that the International Symposium would not be held before August 1967, there would be time for any additional consultations that appeared necessary.

386. When the general feeling of the working group had been thus conveyed in broad terms, the Symposium proceeded to discuss the particular points raised, and accepted the group's recommendations on the central aim of the International Symposium, the nature of the agenda, and the tentative exploration by the secretariat of the possibility of arriving at a common Latin American stand. In that respect, it was stated that although that decision on the part of the Latin American Symposium had been arrived at unanimously, it did not represent any undertaking on the part of the Governments, but should be considered merely as a recommendation for the purpose of guiding the secretariat and for the information of such deliberative bodies as the United Nations Industrial Development Committee and the Economic and Social Council. The decision of the Latin American countries on that point would probably be taken at the next ECLA session.

387. In the course of the discussion a proposal put forward by the representative of France crystallized and was generally endorsed. He suggested that no new studies be undertaken for the international Symposium other than those that were strictly necessary for clarifying the points on the proposed agenda, and that the ample and valuable documentation that already existed should be used to the full, particularly in the regional commissions, for purposes of constant analysis and reference.

388. The representative of the United States stated that his country was in favour of the International Symposium, and hoped that it would lead to the achievement of more specific and useful results in international co-operation. Moreover, he agreed that the International Symposium should avoid indulging in accounts of national experiences and descriptions and analyses of a general nature and should concentrate on the possibilities of practical action. He then explained his Government's policy of leaving its position open with respect to the exact nature of the International Symposium until it had informed itself of the results of all the regional symposia. Its position would be defined at the next session of the Industrial Development Committee. In the meantime, his delegation would not be in a position to take a stand either for or against any

specific proposal made by the informal group of representatives at the present symposium. The representatives of France and the Netherlands wished the record to show that they were not in a position to state their views on a recommendation regarding the nature of the Symposium.

389. After the foregoing statements of opinion there was general agreement on the desirability of the Symposium recommending that the delegations of countries attending the International Symposium be given full powers of discussion so that they might express their opinion on specific commitments.

390. No objections were raised to the proposal made by the working group in respect of the structure of the agenda to the effect that the Symposium might recommend the inclusion of a first part for a discussion of the problems and difficulties of industrial development, followed in the second part by sectoral diagnoses, all of which should be linked up with the question of international co-operation which would be dealt with last of all on the basis of the debates on the first and second parts.

391. There was general endorsement of the proposal that the ECLA secretariat should hold informal con-

sultations 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 eventually in a document to be submitted for the consideration of the Commission at its session in Caracas.

392. The States members of the Commission that had not been represented at the present Symposium should be included in those consultations.

393. It was generally agreed that the consultations to be held by the ECLA secretariat should be undertaken through the medium of the liaison officers appointed for the Regional Symposium. It was also assumed that the secretariat would use the same channels for requesting the Latin American Governments to revise, complete and bring up to date the papers presented to the Symposium since they would provide valuable background material for exploring the possibility of a common stand.

394. Lastly, the meeting welcomed the suggestion that the documents for the International Symposium should be primarily based on existing information, with new studies reduced to the minimum.

ANNEXES

Annex I

INAUGURAL ADDRESSES

Address by Mr. Domingo Santa María Santa Cruz, Minister of Economy, Development and Reconstruction of the Republic of Chile

It is both a great honour and a most pleasant duty to express here the friendly welcome extended by the Government and people of Chile to the distinguished representatives of the Latin American continent assembled in Santiago today to begin the work of the Latin American Symposium on Industrial Development. My words are the expression, not of a mere formality, but of a deep feeling, on the part of my country, of real welcome to all the nations here present. This feeling, nourished by a common history, is strengthened by the knowledge that our peoples are impelled by an unswerving determination to press forward and to achieve welfare goals that will ensure for the broad masses of the population levels of living compatible with the dignity of the human being.

The aim of this symposium is to analyse the problems and prospects of industrial development both for the region as a whole and for the individual countries that belong to it, and to consider what measures and policies can effectively speed up the pace of industrialization within each country, as well as those that relate to regional and international co-operation. This aim represents a challenging task for the participants, and an undertaking of major importance that we can expect to bear fruit in the form of recommendations of the highest significance for the future of Latin America. It is for this reason that the Government of Chile wishes to take this opportunity, while extending to those attending the symposium its warmest welcome, and expressing its best wishes for the success of the work being undertaken here, to put forward, on this solemn occasion, views on certain questions, among those that are to be discussed here, that are of particular concern to Chile at the present moment.

Not long ago a distinguished Chilean, repeating the words spoken over a hundred and fifty years ago by one of the greatest figures in the history of the Americas, stated that our continent is not a group of countries but, on the contrary, a great country that has broken up into smaller units. Today we have a strong awareness of this truth, which must be expressed in the form of a new attitude. The adoption of such an attitude is all the more urgent because on it depends the possibility of giving to our peoples better levels of living, and permitting Latin America to take part in the breathtaking phase of history that is ours, typified by the striking advances of science and technology, and the breaking up of structures, concepts and ideas that only yesterday appeared immutable. Only thus can we hope to face the task that is incumbent upon us all, namely, to reduce the factors of disintegration to the point of disappearance.

In response to this challenge, we have gradually been creating a regional institutional framework that has given encouraging results. Although I cannot hope to list all the bodies that form part of it, I feel I must mention at least those most closely linked with the integration process, such as ECLA, the organization that is today receiving us here, and whose contribution to the knowledge of the true situation in Latin America, and to the solution of many of its problems, is too well known to need any comment from me; the Inter-American Development Bank, which has come to be known as the integration bank; the Central Ame-

rican integration system, which has launched a dynamic process through joint formulas for progress, and the Latin American Free-Trade Association, which because of the geographical area it covers, should be regarded as the major instrument for achieving practical results. ALALC has succeeded in accentuating and giving specific form to the changed mentality that other agencies have been promoting, and can be proud of its greatest triumph, that a group of countries has begun to adopt a common attitude towards problems that only yesterday were looked at from a strictly nationalist viewpoint. In encouraging the contact of our rulers and senior officials, this organization has permitted a better knowledge, and hence a fuller understanding, of the real facts and problems in our countries, and as a result of this closer contact, has made us aware of the urgent need to progress more rapidly and to improve the structures and methods that permit achievement of more advanced integration and complementarity goals. If we consider that not enough has been achieved thus far, then we should act all the more boldly. But whatever view is taken, we regard ALALC as a major first measure of unification, and for this reason we have always given it our enthusiastic support.

In the integration process industrial development must play a key role. Latin America neither wishes nor ought to continue to be a mere exporter of raw materials. Not only can the region call on civilized and intelligent workers, who are anxious to use their skills and energy in the exploitation of Latin America's natural resources, but, in addition, the need for higher incomes, new jobs, agricultural development, economic stability, a sound balance of payments, etc., means that the process of industrialization is not only an aspiration, but an imperative demand of our day and hour. But industrialization requires not only a marked increase in domestic savings, but foreign investment and loans and a change in the structure and direction that have characterized investment thus far, with particular emphasis on the industries that produce intermediate and capital goods. It is essential to halt inflation, by undertaking the structural reforms that will permit a stabilization policy, to prevent monopolies, to strengthen private investment in industry, to provide trained manpower, and to encourage studies of the entrepreneurial sector. But in addition there is a basic need to make a determined fight against inefficiency, to raise productivity and quality, to work at economic costs, and to control profit margins.

These are some of the items that make up the programme before us. I realize there are many others, but I am convinced that your work will provide solid and valuable information with respect to all, and important and stimulating proposals.

Permit me at this point to indicate another cause for concern. When we speak of the desirability of developing our industry, we often stress to the more advanced countries that we hope that they will assist our development not only with technological know-how and capital, but also by opening their large markets, that are now expanding even further, to our manufactures. If there are in fact markets for our manufactures, it is only just that access to these markets should be open, without being blocked by legal provisions or other regulations. This is a desire common to all the peoples of Latin America, and what we seek is fair understanding, not unfounded generosity.

But it is absolutely essential that if we ask the developed countries to open their markets to our manufacturing industry, we must also be prepared to sell our manufactured goods to each other, instead of confining intraregional trade to raw materials, and thus failing to practise what we are preaching to the developed countries of the world.

This trade in manufactured goods requires an effective standardization of our products, to ensure that they can be used, and will be found satisfactory in quality, in all the markets of the region. Obviously this means that the work being undertaken by the Pan American Committee on Technical Standards will have to be speeded up.

In recent years our countries have been led to undertake the programming of their economic and social development, as a result both of the evolution of the economic thinking of our Governments, and of the knowledge of development obtained in other areas of the world and the influence of the Charter of Punta del Este. However, a study of this undoubtedly beneficial process nevertheless gives rise to one misgiving — these programmes, if I may be permitted to say so, are directed inwards, and are based solely on our own internal conditions and our national relationships with the rest of the world, regardless of, and often in flagrant contradiction to, the needs of integration. This applies to all sectors of the economy, but particularly to the industrial field. The co-existence in every Latin American country, on varying scales, of the same industrial activities, with no attempt to aim at maximum scales of production or optimum location on the basis of the long view, is an obstacle that each of us is building up in our own countries, and that may be a cause of serious problems for future integration activities.

The Government of Chile is aware that if these, and many other difficulties are to be solved, a general policy must be formulated, agreed on by all; but at the same time my Government does not overlook the fact that some industrial development measures now being taken may well work either for or against integration. This is why, while we are energetically urging the need to define general integration policies, we are actively seeking to conclude industrial complementarity agreements, which are positive achievements, even though on a small scale, since we are convinced that once a certain number, and not necessarily a large number, of such agreements are concluded, the complementarity process and the benefits that will follow in its train — technological progress, economies of scale, concentration of production in the country best equipped for a particular manufacturing line, etc. — will be an irreversible process of a self-sustaining nature.

Lastly, I would like to stress the importance for all our countries of establishing a common agency for the dissemination of industrial know-how, that will permit us to keep abreast of the advances made in this field, and of the manufactured goods and, even more, the capital goods that are available. I believe that such a body could go far to solving some of the problems I have referred to.

I would ask you to overlook this rather superficial resumé of subjects that belong to the special fields of the experts present here today. My purpose is merely to indicate a few of the points of concern that are occupying the minds of those of us who are at present responsible for governing my country.

We now have to meet the challenge of our industrial development, and consequently the progress of Latin America. To procrastinate will be to run the risk of failure. Hence, I wish to extend the sincere thanks of my Government to ECLA for having organized this symposium, and thus permitted a study of what our response to this challenge is to be. I also wish to express my Government's gratitude to the participants in the symposium, whose expert knowledge of the problems raised here is sufficient guarantee that their examination will mobilize, in the cause of our development, all the strength, generosity and intelligence of our whole continent.

Address delivered by Mr. José Antonio Mayobre, Executive Secretary of the Economic Commission for Latin America

The Economic and Social Council and the United Nations Centre for Industrial Development deemed it desirable to promote a comprehensive review of the industrialization process

in the developing countries, with a view to analysis of the recent experience in this field acquired in different parts of the world, study of the favourable and unfavourable factors that have had to be coped with, and definition of the role that would seem to be incumbent upon industrial development in the essential task of accelerating the rate of economic and social growth. This is why we have met here today, to begin by comparing notes on what has happened in our countries. Our findings considered jointly and in comparison with those of Africa, Asia and the Middle East, will be discussed in the course of a similar symposium, at the world level, which is to be held next year. I am confident that the results of our proceedings will represent a decisive contribution to the evaluation of policies for international co-operation in industrial development which is to be attempted on that occasion.

I

Latin America's experience in the field of industrial development, assessed in aggregate and quantitative terms, and viewed in relation to the over-all framework of conditions and policies — not always propitious — in which the process has had to evolve, is marked by significant achievements. From the post-war period up to recent years, the growth rate of the industrial sector has been persistently high. Manufacturing industry's share in the product has steadily expanded, reaching 24 per cent in the region as a whole, and approaching or exceeding 20 per cent in nearly half its countries. Consequently, during the past twenty years a substantial industrial base has been established in our continent, which furnishes our economies with a wide assortment of consumer goods and an increasingly varied range of capital goods and intermediate products. This has implied the introduction of production techniques and procedures formerly unknown in Latin America, together with large-scale recruitment of entrepreneurial capacity and skilled labour. Similarly, applied research in the field of industrial technology is being assiduously undertaken, despite the region's almost total lack of previous experience in such work. All this has entailed an ambitious investment effort. Suffice it to mention, by way of example, the iron and steel industry, which nowadays produces little less than 9 million tons of steel; in which seven of our countries have invested about 3,200 million dollars since the post-war period; and in which techniques and know-how virtually new to Latin America have had to be assimilated on a major scale.

This effort in the fields of technological progress, productive investment and up-to-date vocational training is all the more noteworthy, inasmuch as it was undertaken in an economic environment that could on no account be considered favourable, characterized as it was by a social organization which was archaic in many respects, and whose prevailing codes of values were out of line with those of a modern industrial society.

All this cannot but fill us, as Latin Americans, with legitimate pride. But such encouraging evidence should not prevent us from carefully and critically evaluating the development process undergone by our industry. Everything that has been achieved must be regarded, at the present time, as a starting-point for the new and even more important advances that industry will have to make in the next few years. It is essential to assess the industrial development process in terms of the requirements deriving from a rate of economic growth that must be greatly speeded up if it is to keep pace with the explosive growth rate of the population and with the latter's increasingly ambitious aspirations in respect of social well-being. In recent years, the industrial development process has begun to show manifest symptoms of enfeeblement. And this circumstance calls in question its capacity to provide an adequate basis for accelerated economic development, unless the industrial development policies hitherto pursued are overhauled and adapted to the new conditions prevailing in the region.

The findings of secretariat studies would seem to indicate that Latin America's industrial development has come to the end of a clearly-demarcated phase: the stage of non-selective import

substitution, not properly programmed, and promoted mainly by means of tariff protection and other import restrictions. The application of a stringent import substitution policy, as the chief means of giving dynamic impetus to the industrial development process, was perhaps inevitable, and necessary on account of the serious external payments difficulties with which many of our countries have been faced and the fact that the existing industrial base was too narrow for the development process to be left open to regional or world competition.

Nevertheless, whatever the grounds on which this inward-directed development policy could be justified at first, and whatever the benefits that have accrued from it, some of its results have been unfavourable: scales of production far below minimum economic standards, insufficient degrees of specialization, unsatisfactory levels of technology and a lack of incentives to their continual improvement. All this, in turn, means that costs are far higher than those of competing lines of production abroad. These are situations pertaining to a stage now completed, which for all its defects and shortcomings, has represented a real contribution to the economic development of Latin America, inasmuch as the region's domestic production has been diversified and a steadily growing source of local supplies of basic intermediate products and capital goods has been created. Henceforward, the industrial base established and the experience gathered by the entrepreneurial and labour sectors must be used as bridgeheads for a new advance towards broader horizons. We need to imbue our industrial sector with dynamic elements, making for growth and improvement, that are endogenous in industry itself, and no longer dependent upon import substitution possibilities which are rapidly becoming exhausted, especially where the products of the traditional industries are concerned. We must assimilate new production techniques, properly adapted to the conditions of our economic environment. We need to expand our scales of production until they cease to be, as in practice they are today, a mere fraction of those prevailing in the more advanced countries. Lastly, it is our responsibility to devise methods of work that will lead our industries to push on unflinchingly towards higher levels of operational efficiency and labour productivity. If we have the will and the ability to do all this, we shall manage to surmount, within a reasonable space of time, the barrier of high costs and prices which has so far prevented us from using the potential comparative advantages that our productive resources would give us, to secure a competitive foothold in world markets.

The reduction of the present high cost levels is, in fact, a *sine qua non* for the new phase upon which our industrial development is entering. On this hinges, in many respects, the possibility of speeding up the rate of economic development. In the first place, the expansion of the capacity to import — or even, perhaps, its maintenance at its present level — cannot be based solely upon increased exports of primary commodities, but will have to be sustained to a growing extent by exports of manufactured goods. And this presupposes export prices capable of competing with those of the most efficient world producers, possibly under the aegis of some preferential treatment which may be agreed upon at the level of the United Nations Trade and Development Conference, but in any event on a basis of more economic production conditions. Secondly, the economic integration of Latin America will itself be more smoothly and rapidly promoted if intra-regional export prices draw steadily closer to those quoted on international markets. Many of the problems relating to reciprocity and balance of benefits among the countries taking part in the integration movement would be greatly simplified if the margins by which intra-regional trade prices exceed world market quotations could be perceptibly reduced within a reasonable period, at least in the case of those manufactured goods whose incidence on the development process is greatest.

How to attain such objectives, in view of the backwardness of many sectors of industry in Latin America, the size of

the region's markets, which are still small in relation to those of the developed countries, and the shortage of investment resources, is the essence of our industrial development problem today. This is the concern that lies behind the whole of the agenda prepared for the present Symposium. And I am sure that the proceedings of the next few days will help us to discover the right answers to the major questions arising in connexion with our countries' future industrial development.

Here in the secretariat we have analysed the various aspects of this basic problem, and our conclusions are submitted to the consideration of the delegations through the documents presented at this Symposium.

In broad outline, our belief is that fundamental changes of approach must be adopted, on the basis of which it will be possible to define an industrialization policy suited to the new circumstances. The following would be, in essence, the main features of such a policy.

The first indispensable requisite is to give import substitution policy as a whole a regional character, broadening markets and adapting scales of manufacturing production to the new conditions established. The benefits deriving from economies of scale would thus be combined with the advantages attaching to a more varied and plentiful regional supply of capital goods and intermediate products, so that future development could be less dependent upon the capacity to import goods from outside the region.

Secondly, competition must be assigned a significant role in the promotion of efficiency and productivity. This implies more flexible use of the tariff protection instrument, so as to ensure that the protection granted is neither excessive, nor of permanent or indefinite duration. Competition among producers is a factor of fundamental importance for the Latin American economies, and constitutes the strongest incentive to technical progress and productive efficiency in general. To cut it out, by persisting in an import substitution policy based on relatively narrow and entirely closed markets, whether for protectionist ends or on account of external payments difficulties, would mean creating conditions that sooner or later would lead to technological stagnation and operational inefficiency, and a consequent recurrence of some of Latin America's less fortunate experiences.

Thirdly, approaching the industrial development of Latin America from the standpoint of regional integration implies not only the establishment of a broad market by means of the appropriate measures to reduce or eliminate tariff duties, but also the co-ordination of the investment policies and programmes formulated by the countries of the region. New and heavy investment would have to be effected in order to exploit each country's natural resources for the benefit of the region as a whole. These resources would thus be developed at a faster rate than any one country could achieve on the basis of its own savings alone. The criterion for channelling investment would be that of efficiency, with respect to advantages of location, economic scales of production, and the adoption of the most up-to-date and appropriate production techniques in each case. All this is hardly conceivable without co-ordination at the regional level. The outcome of such co-ordination should be optimum distribution of the limited capital resources available in Latin America as a whole, and it would also have to be used as a means of ensuring that every country enjoyed its fair share of the benefits of integration.

This last objective is one of the basic concerns repeatedly expressed by the countries members of the Latin American Free-Trade Association (ALALC). The chief instrument for its attainment will be the establishment of a regional investment co-ordination policy. Such a policy is not, of course, easy to determine, nor can its nature be the same or the procedures for applying it similar throughout the whole of the manufacturing sector. On the contrary, it will have to be adapted to the particular conditions and circumstances of each branch of industry, and this is

one of the reasons why it was thought essential for the agenda to include a brief review of the present situation and of future prospects in each of the major branches of industry discussed.

Lastly, the above-mentioned basic conditions for directing the industrial development process along new lines — regional integration of markets, progressive introduction of competition and co-ordination of investment — could hardly be established unless the practice of programming economic development in general, and industrial development in particular, were adopted throughout Latin America. The immense complexity of the tasks involved in regional integration and co-ordination of investment in the main sectors of industry calls for a degree of rationality in Latin America's development process which can only be attained if programming procedures are systematically applied in the individual countries, and the resulting national programmes are considered side by side and co-ordinated at the regional level, through the integration agencies.

In this field, Latin America has made notable headway during recent years, and planning machinery is being set up in almost all the countries at the region. But there is one basic deficiency by which industry is particularly affected: namely, failure to co-ordinate the formulation of development objectives and policy decisions with the manipulation of tariff, fiscal and other instruments of industrial policy, as a consistent body of measures bearing on the targets established. An especially important aspect of this question is the private sector's participation in the programming and execution of industrial plans. Latin America still has a long way to go in that direction, and to this problem the Symposium will undoubtedly devote some part of its time.

II

The discussions of general industrial development problems must be complemented by a diagnosis and analysis of prospects for the leading branches of industry. Accordingly, one of the items on the provisional agenda for the present Symposium is a study of the existing situation and of the problems that obstruct development in the iron and steel, chemical, pulp and paper, metal-transforming and textile industries.

The documents presented by the secretariat show how immensely wide a variety of situations is to be found in these sectors, not only because of their dissimilarities in respect of technological complexity, minimum economic scales of production or unit investment requirements, but also because aptitudes differ from one country to another. I shall refer here only to the picture presented by one of the activities in question, which is among those of most importance for industrial development as a whole — the iron and steel industry.

Latin America's iron and steel industry has two distinguishing features which are of capital importance: firstly, the heavy investment it entails and the under-utilization of that investment as a result of operational conditions; and, secondly, the extremely high figures reached by projections of demand for steel during the next ten years, and the considerable investment effort which will have to be made if the proportion satisfied by domestic production is to remain constant.

In recent years, the iron and steel industry in Latin America has been utilizing only a little over 50 per cent of its installed rolling capacity. This signifies a waste of annual production potential that may be estimated at 6-7 million tons of ingots, worth 360-400 million dollars. In a large number of Latin American steel mills, serious cumulative imbalances between the various production sections have grown up one after another, in consequence of circumstances closely linked to the small size and isolation of the national markets, over against an import substitution policy carried to extremes, for the sake of saving foreign exchange. The indivisibility of the most important production equipment, the desire to manufacture a wide and varied assort-

ment of final rolled products, and the habit of constructing the mills by stages because of the shortage of capital resources, have given rise to disequilibria in installed capacity which keep the utilization of investment down to the level of the equipment or section whose production capacity is lowest. It is true that the main objective of the expansions currently under way or projected in many of the mills is the elimination or reduction of imbalances in capacity, but it seems doubtful whether this aim can be fulfilled so long as the basic conditions which gave rise to this state of affairs are still in existence — that is, the isolation of the national markets and the lack of co-ordination and long-term planning of the requisite investment. This last aspect of the problem is especially important, since a renewed investment effort will be required in the coming years, on an even greater scale than in the past. In the next stage of development of Latin America's iron and steel industry, investment per ton of final product will be much lower, owing to the fact that many of the requisite expansions will be complementary to the existing plant. Nevertheless, the investment required between now and 1970 for the production of the extra 6.5 million tons that will be needed to satisfy Latin America's predicted steel consumption is estimated at approximately 1,300 dollars, to which must be added another 3,000 million for the expansion projects and new mills that will have to be constructed in 1970-75, in order to produce a further 10 million tons.

Accordingly, the channelling of future development in Latin America's iron and steel industry along lines that will ensure optimum utilization of such vast capital resources, through maximum exploitation of the benefits deriving from economies of scale, higher levels of specialization and more intensive introduction of advanced techniques, is a veritable *sine qua non* for the economic development of Latin America. And this entails integration of the industry at the regional level, an unquestionably difficult and complex objective (to which one of the documents presented at the Symposium relates), but so important as to merit the high priority already assigned to it in the work programmes of such agencies as ALALC and the Inter-American Development Bank (IDB).

III

All that has been said goes to show the importance of regional co-ordination of investment for the purposes of turning economies of scale and technological progress to account in the future development of the leading branches of industry. The procedures for such co-ordination will of course have to be adapted to the particular situation of each individual sector and each separate country, and it would be out of place to go deeply into this question here. I should like, however, to draw attention to two aspects of the problem.

The first relates to the balanced distribution of benefits which all the countries taking part in the integration process must be guaranteed, especially those at a relatively less advanced stage of development, or less fortunate as regards the resources with which they are endowed. One of the most favourable features of the Latin American integration movement, and, in particular, of the commitments agreed upon in the Montevideo Treaty, is that they have fully awakened Latin America to the impossibility of leaving the distribution of regional integration benefits to the free play of market forces, on account of the effect that would be produced by the almost inevitable tendencies towards concentration. This is why we have suggested that in the field of industry regional integration should be promoted through sectoral agreement, in which commitments to reduce or eliminate tariff duties, and others connected with trade policy, can be supplemented by investment and technical assistance arrangements. Programmes for particular sectors of industry would be established in relation to regional development programmes of a guide-line type. They would include descriptions of the industry's growth prospects and diagnoses of the difficulties that might be encountered both

in expediting its development and in enabling all countries to face competition from other producers in the region without exposure to any very serious maladjustments.

In such programmes, the countries whose industries were most handicapped in intra-regional competition by small plant sizes or by low levels of technology or operational efficiency would find the financial and technical support they needed in order to catch up with those in which the sector concerned had made most progress; they would thus be able to stand up to competition, which in its turn would act as a spur to trade and development. Moreover, the concept of equality of opportunities, which the developing countries have been pressing for at the world level, would be put into force in Latin America. Nor would its application militate against efficiency in the distribution of productive resources, since this would conform to a regional development programme in which each country's individual situation would be taken into account. The basic aim of such a policy should be the achievement of balanced and sustained development throughout the region. To that end, it should cover economic and industrial activities as a whole, so that incentives to development would be provided in one sector or another, according to each individual country's special aptitudes, natural resources and fund of experience.

Another aspect of economic integration which is of capital importance, especially in the field of industry, is its possible effect on the Latin American countries' current endeavours to further the development of stationary or depressed areas, with a view to the promotion of their own national integration. It is a common notion that, if closer ties of interdependency were established among the dynamic centres existing in the countries concerned, this regional integration process might generate a centrifugal force which would run counter to their internal integration movement, a possibility which is indubitably a source of concern in many responsible circles in Latin America. In this connexion, it must be admitted that an economic integration process left entirely to the free play of market forces might ultimately produce results of this sort, but there is no reason why any such eventuality should ever arise. Regional integration is not a process that must over-ride or supersede national economic and social development objectives, but one that provides a means of promoting their attainment more swiftly and efficaciously. All that is needed, therefore, is, in the first place, to formulate national development objectives clearly — and here, once again, the pressing need for the universal adoption of planning procedures makes itself apparent — and to implement, at the national level, measures of economic policy, fiscal directly promotional or of other kinds, appropriate and adequate to the particular circumstances existing in each case. Secondly, regional integration procedures would have to be co-ordinated, and its instruments selected, in such a way as to ensure their compatibility with national development objectives and policies.

Consequently, the economic integration of our countries is not only a historical necessity of our time, but a highly promising avenue of approach to the acceleration of economic development in general and industrial development in particular, and thus to the improvement of living conditions for the whole population of Latin America.

I believe that the present meeting will afford a magnificent opportunity for comparing notes on the experience gathered by our countries in the field of industrial development. I am convinced that our discussions will result in a clearer understanding of the limitations that have marked the industrial development process in the past, and of the conditions that will have to be established in the future in order to speed it up. I am confident, too, that the conclusions you reach in relation to each of the agenda items will make for the improvement of our industrial policy, and will help to set the pattern for Latin America's contribution to the forthcoming world symposium on industrial development.

I should like to offer all the delegations, observers and representatives of international agencies here present my best wishes for the complete success of the Symposium that is opening today.

Statement by Mr. Walter A. Chudson, Deputy Director, United Nations Centre for Industrial Development, on behalf of the Commissioner for Industrial Development

May I, first of all, welcome the participants at this important conference on behalf of the Secretary-General of the United Nations and also on behalf of the Centre for Industrial Development of the United Nations. Mr. Abdel-Rahman, Commissioner for Industrial Development, in charge of the Centre, has asked me to express his regret that his official duties in New York have prevented his attendance. He also wishes me to convey to our colleagues in ECLA his congratulations for the admirable way in which they have prepared and documented this conference and his satisfaction that its preparation has been the occasion of close co-operation between the Centre for Industrial Development and the Secretariat of ECLA.

The Latin American Symposium on Industrial Development is the last of four such meetings which have recently been held in the major under-developed regions of the world. It is our hope that these meetings will serve several purposes. In the first place, by offering the countries of the region an occasion to examine and compare their own industrial experiences and problems, the symposia should assist them in formulating their national policies and in devising measures of regional co-operation. Secondly, we believe that the symposia will provide an opportunity to countries in one region to compare their problems and decisions as they emerge from these meetings with the problems and decisions of countries in other developing regions. In this respect, the experience of Latin America, where industry has advanced further than in the other major developing regions, taken as a whole, may be instructive. This refers both to achievements and to shortcomings, a number of which are forcefully analysed in ECLA's survey of recent industrial development in the region.

Finally, the regional meetings are preparatory in nature, in so far as they are designed to lead up to and prepare the ground for an International Symposium to be held in 1967. The concluding item of your agenda concerns the International Symposium. We have submitted to you a tentative plan and agenda for this meeting and we look forward to your observations on these points in order to take them into account when we present to the next session of the Committee for Industrial Development in April a plan for the international symposium. The tentative agenda of the Symposium contained in a note which has been circulated to you (ST/ECLA/Conf.23/L.10) is a very comprehensive one, reflecting the many-sided nature of the industrialization process. It is for you to select those matters for emphasis which you believe are the most important for Latin America to bring to the attention of the world community at the international gathering next year. The results of your meeting will be an important element in determining the nature of the International Symposium, its agenda and its action. It will be our task in the Centre for Industrial Development in New York to study and compare the results and trends of discussion at your meeting here with those of the other regional meetings in order to make the best possible preparations for the International Symposium next year. You can also be sure that your recommendations will be carefully studied in the United Nations bodies and, I am sure, also by the industrial countries, financing institutions and countries in other developing regions of the world.

The agenda of the present meeting illustrates the wide range of issues that are involved in the process of industrialization and the priorities for action that emerge from the analysis of the recent evolution of Latin American industry which has been made by the ECLA secretariat. There are issues which are essentially nation-

nal — issues of industrial policy and programming, issues relating to the development of small-scale enterprises, and problems of the adaptation of industrial processes and machinery to Latin American conditions. There are issues relating to the efficiency of existing industry as well as to the efficiency of new enterprises. Some of these may be dealt with at the national level, but others, as suggested in the secretariat's analysis of some of the main industrial sectors, call for an expansion of markets through sub-regional or regional co-operation.

Finally, there are issues which call for an even wider international co-operation, whether bilaterally or multilaterally through international organizations. Whereas the regional meetings will naturally focus particularly on national problems and solutions, the wider forum of the International Symposium, in which we expect the industrial countries will play a leading part, will afford an opportunity for the consideration of those recommendations and findings of the present meeting which will inevitably depend for their implementation on the full co-operation of the advanced countries and of the international institutions of which they are the major supporters. This means in particular a consideration of the practical ways and means by which the international flow of capital, skills, enterprise and technology to the industrial sector can be speeded up. It also means a consideration of practical measures that may be taken to expand the export of manufactures from developing countries in addition to those under consideration in the United Nations Conference on Trade and Development; and finally, it means an examination of the ways in which the agencies of the United Nations system can assist further in stimulating the industrialization process.

I should like to turn now to the relation between the present meeting and the activities of the United Nations in the field of industrial development.

A major object of the regional and international symposia is to examine in general terms the requirements for technical assistance in the industrial field, the problems that arise and the means for overcoming them. In this way we hope to prepare the ground for an expansion in the amount and an improvement in the quality of the technical assistance provided to the developing countries in the field of industrialization. We anticipate that your discussions of key industrial sectors and of particular institutions and needs in such fields as industrial programming, technological research, the support of small-scale enterprise and the development of a more efficient export capacity in manufactured goods will assist in developing new programmes which can be undertaken by the Centre for Industrial Development and by its successor organization, the New United Nations Organization for Industrial Development which is to be established next year.

In this connexion, I think you will be interested to have some information on the new organization which the General Assembly of the United Nations decided to establish only a few months ago. The details of its organization remain to be determined by a special preparatory committee which will meet at the end of this month, but it can be said that the purpose of the decision taken by the General Assembly is to provide a more effective form of organization and also an enlarged programme of activities, with a view to securing both a more rapid and a more efficient industrialization of the developing countries.

The United Nations Organization for Industrial Development will be an autonomous body within the framework of the United Nations. An important feature of the new organization is that part of its operational activities will be met by special voluntary contributions from the member countries. The idea behind these special contributions is to provide a basis for remedying what appears to be certain shortcomings in the traditional type of technical assistance, pre-investment and financing services for industry provided by the United Nations family. In broad terms the aim is to provide what may be called special industrial services

which can be supplied through more flexible methods and procedures than those of existing programmes. One important need for such special services in some countries appears to arise from the necessity to develop a fresh approach to the relation between pre-investment studies and the actual investment process of industry. Hitherto, the approach of the United Nations has been based on the principle of a distinct time sequence between pre-investment projects on the one hand (consisting of economics and technical feasibility studies) and the subsequent process of finding the finance for the actual investment on the other. Much time and money can be wasted, and much frustration experienced by undertaking extensive and expensive studies if it is then found that financing sources are not interested or that the sources insist on making the studies all over again before entering into a commitment. The idea which has emerged is that one type of special industrial services should be provided to assist countries in obtaining financial support for industrial projects before going too deeply into detailed blueprints and engineering studies. It is hoped in this way to reduce the time-lag between pre-investment work and actual investment decisions on industrial projects.

The need for other new types of special industrial services is also being explored by the Centre for Industrial Development. A number of promising ideas on this problem have been put forward by the ECLA secretariat in the annotated agenda for this meeting and deserve careful study. It is gratifying to be able to report that there has already been a generous response to the idea of securing special voluntary contributions by Governments for the purpose of furthering industrialization through special industrial services. Substantial contributions have already been made by the United States of America, the United Kingdom, the Federal Republic of Germany, Sweden and the Netherlands, and others have announced their willingness to contribute. These voluntary contributions, which already amount to more than \$5 million, are now available as additional contributions within the framework of the United Nations Development Programme.

Although the organizational details of the new organization remain to be decided, we think that the lines along which the programme of the Centre for Industrial Development has already been proceeding indicate an approach which the new organization will also find suitable for its widened purposes. There are, at present, three broad categories of activity in the Centre's programme: one deals with specific branches of industry (such as fertilizers, textiles, engineering, etc.) a second with problems of industrial policies and programming (including financing) and a third with industrial institutions, including industrial research and training facilities. It is our view that these categories reflect the fact that industrialization, to be really effective, lasting and self-sustaining, in the last analysis must be securely based in the institutions, policies and technical capacities of the developing countries themselves.

It is our hope that at the regional symposia and the international meeting to follow, the ways and means of developing these capacities, whether through national, regional or international action will be thoroughly explored. The results of these discussions will be studied carefully by the Centre and the future Organization for Industrial Development for any indication they may give as to how we can make the United Nations programme in the field of industrial development more effective. The Governments of countries which are in a position to supply a variety of technical services for the industrialization of the developing countries have displayed a willingness to channel an increasing amount of such services through United Nations machinery. We regard this willingness as a challenge to the United Nations and the developing countries themselves to formulate programmes for the effective use of such resources. If the present meeting provides an impetus in this direction, it will have served the countries of the region well and amply justified the efforts of the participating countries and of the United Nations that have been devoted to it.

Annex II

LIST OF PARTICIPANTS

1. GOVERNMENT REPRESENTATIVES

ARGENTINA

- Carlos A. Salazar, National Director of Industrial Development, Department of Industry and Mines
- Mauricio Kampel, Adviser, Department of Industry and Mines
- Roberto J. Tomasini, Adviser, National Development Council (CONADE)
- José Lorenzo Vietti, Adviser, National Development Council (CONADE)
- Alberto E. Moroni, Secretary, Argentine Embassy in Chile

BRAZIL

- Hélio Schlittler Silva, Director, National Economic Development Bank (BNDE)
- Edgard N. Braga, Jr., Chief, Department of Economics, National Economic Development Bank (BNDE)
- Ezio Távora dos Santos, Chief, Department of International Operations, National Economic Development Bank (BNDE)
- Lineo Emilio Klüpel, Chief, Division of Sectoral Studies, National Economic Development Bank (BNDE)
- Victor Resse de Gouvêa, Director, Federation of Industries of the State of São Paulo (FIESP)
- Marcos Telles Almeida Santos, Federation of Industries of the State of São Paulo (FIESP)
- Pericles Locchi, President, Association of Industries of Raw Materials for Fertilizers, São Paulo
- Julio Sauerbronn de Toledo, President, Brazilian Association of Chemical and Chemical Products Industries
- Remolo Ciola, Brazilian Association of Chemical and Chemical Products Industries
- Walter Ferri da Silveira Horta, Economist, Ministry of Planning

CANADA

- R. E. Gravel, Commercial Attaché, Canadian Embassy in Chile
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- Luis Velasco del Campo, Deputy Project Chief, Development Corporation (CORFO)
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- Daniel Sánchez Valencia, Chief, Industry and Trade, Department of Planning
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- Arturo E. Tangarife, Industrial expert, Division of General Policy, ALALC Sub-Division
- Pablo Samper, Director, Private Development Committee
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- Miguel Alejandro Figeras, Economist, Vice Ministry for Economic Development of the Central Planning Board

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- Robert Clar, Chemical engineer, Société Air Liquide
- Roger Pliox de Rotrou, Engineer, Bureau d'organisation PLANUS

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- Roberto López Pérez, Chief, Industrial Programming, National Planning Council

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- Mario Rietti, Chief, Industrial Programming, Higher Planning Council
- Oscar Martínez Cubas, Deputy Chief, Industrial Development Division, National Development Bank
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- Frank Thompson, Economist, Economic Planning Division, Office of the Prime Minister

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- Eldon L. Vie, Manpower adviser, Bureau of International Labor Affairs, United States Department of Labor

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- Tulio Balzo, Co-ordinator, Industrial Programming Sector, Investment and Economic Development Commission (CIDE)

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- Roberto Alamo Blanco, Chief, Planning Division, Corporación Venezolana de Guayana
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- Mitsuhiro Kubo, Third Secretary, Japanese Embassy in Santiago

POLAND

- Damian Silski, Commercial Attaché, Polish Embassy in Santiago

ROMANIA

- Ion Danila, Second Secretary, Romanian Embassy in Buenos Aires

SPAIN

- José María Sierra Nava, First Secretary, Spanish Embassy in Santiago

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- Erik Tennader, Chief of Division, Ministry of Foreign Affairs
- Tor Lindqvist, Director, Federation of Industries, Export Association

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- Viktor V. Volsky, Director, Latin American Institute, Academy of Sciences of the USSR

Vadim L. Rosanov, First Secretary, USSR Embassy in Chile
 V. N. Gorgassidze, Second Secretary, Department of International Economic Organizations, Ministry of Foreign Affairs

YUGOSLAVIA

Romano Moric, Ambassador to Chile

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Jean Mayer, Manpower planning expert (Chile)

Claude Dumont, ILO staff member

Food and Agriculture Organization of the United Nations (FAO)

Hernán Santa Cruz, Assistant Director-General for Latin American Affairs

Jacobo Schatan, Regional economist, Director, ECLA/FAO Joint Agricultural Division

Hubertus Reichardt, Regional Forestry Officer for Latin America

Erik Garnum, Chief, Pulp and Paper Section, Forest Industries and Utilization Branch

Seppo Räisänen, Chief, Latin America Forest Industries Advisory Group

Hubert Montagnac, Agronomist

Luis I. Sanguinetti, Food Industries Regional Office

United Nations Educational, Scientific and Cultural Organization (UNESCO)

Michael Goldway, Expert on vocational and professional training

World Health Organization (WHO)

John J. Bloomfield, Regional adviser

International Bank for Reconstruction and Development (IBRD)

Hans Fuchs, Deputy Director of Investments in Latin America, Europe and Australasia

Bertil Waldstedt, Economic Department

International Atomic Energy Agency (IAEA)

Adel A. Talaat, First Officer in charge of Technical Assistance Programme to Latin America

United Nations Development Programme

Ernest W. Nagelstein, Chief, Research Division

Latin American Institute for Economic and Social Planning

Héctor Soza, Chief, Industrial Programming Unit

Zoltán Szabó, Industrial Programming Unit

Héctor Fernández, Projects Division

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Wolfgang Renner, Counsellor and Chief of the Liaison Office of the High Authority in Santiago

Organization of American States (OAS)

Jorge Beruff, Department of Economic Affairs, Industrial Unit

Central American Bank for Economic Integration (BCIE)

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Permanent Secretariat of the General Treaty on Central American Economic Integration (SIECA)

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Organization for Economic Co-operation and Development (OECD)

Eugene B. Abrams, Head, Technical Co-operation Policies Division

Angus Maddison, OECD Development Centre

Latin American Free-Trade Association (ALALC)

Digno Martínez López, Industrial programmer

Gonzalo Valenzuela Bousquet, Technical engineer, Secretariat

5. REPRESENTATIVES SPECIALLY INVITED BY THE SECRETARIAT

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Latin American Iron and Steel Institute (ILAFI)

Marcelo Ducrey, Chief, Department of Economic Studies

USA Development and Resources Corporation

Peter Warren, Industrial development specialist

Annex III

LIST OF DOCUMENTS

<i>Symbol</i>	<i>Title</i>	<i>Submitted by</i>
ST/ECLA/Conf.23/L.1	Annotated provisional agenda, provisional list of documents and outline for the preparation of the national reports	ECLA
I. INDUSTRIALIZATION IN LATIN AMERICA: EVALUATION AND PROSPECTS		
ST/ECLA/Conf.23/L.2	The process of industrial development in Latin America	ECLA
ST/ECLA/Conf.23/L.28	Industrial development: problems and issues	CID
ST/ECLA/Conf.23/L.35	El desarrollo industrial de la Argentina	Government of Argentina
ST/ECLA/Conf.23/L.36	O Desenvolvimento industrial do Brasil	BNDE
ST/ECLA/Conf.23/L.37/Rev.1	El desarrollo industrial de Centroamérica	SIECA
ST/ECLA/Conf.23/L.17	El desarrollo industrial de Colombia	Government of Colombia
ST/ECLA/Conf.23/L.63	El desarrollo industrial de Cuba	Government of Cuba
ST/ECLA/Conf.23/L.46	El desarrollo industrial de Chile	Government of Chile
ST/ECLA/Conf.23/L.16	El desarrollo industrial del Ecuador	Government of Ecuador
ST/ECLA/Conf.23/L.38	El desarrollo industrial de México	Government of Mexico
ST/ECLA/Conf.23/L.51	El desarrollo industrial del Paraguay	Government of Paraguay
ST/ECLA/Conf.23/L.39	El desarrollo industrial del Perú	Government of Peru
ST/ECLA/Conf.23/L.50	El desarrollo industrial del Uruguay	CIDE
ST/ECLA/Conf.23/L.24	El desarrollo industrial de Venezuela	Government of Venezuela
ST/ECLA/Conf.23/L.45	Industrial Development of Trinidad and Tobago	Government of Trinidad and Tobago
	Industrial Development in Guyana	Government of Guyana
ST/ECLA/Conf.23/L.25	Descripción de las actividades de la Asociación Latinoamericana de Libre Comercio en el campo industrial	ALALC
ST/ECLA/Conf.23/L.19	The economic significance and contribution of industries based on renewable natural resources and the policies and institutions required for their development	FAO
ST/ECLA/Conf.23/L.20	Some essential requisites for industrial development of renewable natural resources	FAO
ST/ECLA/Conf.23/L.21	Food and food products industries	FAO
ST/ECLA/Conf.23/L.22	Industries processing agricultural products other than food	FAO
ST/ECLA/Conf.23/L.23	Fisheries industries	FAO

**II. PRESENT SITUATION, PROBLEMS AND PROSPECTS OF THE
MAIN INDUSTRIAL SECTORS**

ST/ECLA/Conf.23/L.3	Los principales sectores de la industria latinoamericana: problemas y perspectivas	ECLA
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1. Basic metals industry

ST/ECLA/Conf.23/L.29	La economía siderúrgica de América Latina	ECLA
ST/ECLA/Conf.23/L.26	Perspectivas del desarrollo de la industria del aluminio primario en América Latina y posibilidades de integración regional	ECLA

*Symbol**Title**Submitted by**2. Chemical Industry*

ST/ECLA/Conf.23/L.5	Report of the Seminar on the Development of the Chemical Industry in Latin America	ECLA
ST/ECLA/Conf.23/L.30	La industria petroquímica en América Latina: evolución y perspectivas	ECLA

3. Pulp and paper industry

ST/ECLA/Conf.23/L.32	El papel y la celulosa en América Latina: situación actual y tendencias futuras de su demanda, producción e intercambio	ECLA/FAO/BTAO Advisory Group
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4. Metal-transforming industry

ST/ECLA/Conf.23/L.18	La fabricación de maquinarias y equipos industriales en América Latina: IV. Las máquinas-herramientas en la Argentina	ECLA
ST/ECLA/Conf.23/L.4	The metal-transforming industry in Venezuela: an import substitution development programme	ECLA
ST/ECLA/Conf.23/L.13	La industria mecánica del Uruguay: Un programa para su recuperación y desarrollo	ECLA

5. Textile industry

ST/ECLA/Conf.23/L.8	The textile industry in Latin America: VIII. Argentina	ECLA
ST/ECLA/Conf.23/L.7	La industria textil en América Latina: IX. Ecuador	ECLA
ST/ECLA/Conf.23/L.11	La industria textil en América Latina: X. Venezuela	ECLA
ST/ECLA/Conf.23/L.31	La industria textil en América Latina: IX. México	ECLA
ST/ECLA/Conf.23/L.9	Economies of scale in the cotton spinning and weaving industry	ECLA
ST/ECLA/Conf.23/L.33	The choice of technologies in the Latin American textile industry	ECLA

III. PROBLEMS RELATING TO FINANCING, EXPORTS AND SMALL-SCALE INDUSTRY

1. Credit for industrial expansion

ST/ECLA/Conf.23/L.41	El crédito para financiamiento de la industria de bienes de capital en algunos países de América Latina	ECLA
ST/ECLA/Conf.23/L.15	Issues in the financing of industrial development	CID
ST/ECLA/Conf.23/L.64	Algunas experiencias del BCIE sobre política industrial y asistencia financiera	BCIE
ST/ECLA/Conf.23/L.57	Aspectos del financiamiento internacional del sector manufacturero bajo la Alianza para el Progreso	ICAP-OAS
ST/ECLA/Conf.23/L.60	El Banco Interamericano de Desarrollo y el sector industrial	IDB
ST/ECLA/Conf.23/L.58	The experience of the World Bank Group in Financing Industrial Development in Latin America	IBRD-IFC

<i>Symbol</i>	<i>Title</i>	<i>Submitted by</i>
<i>2. Exports of manufactures to world markets</i>		
ST/ECLA/Conf.23/L.49	La exportación como perspectiva del desarrollo siderúrgico latinoamericano	A. Martijena for ECLA
ST/ECLA/Conf.23/L.40	Perspectivas de las exportaciones latino-americanas de celulosa y papel fuera de la región	A. Sundelin for ECLA
ST/ECLA/Conf.23/L.43	L'exportation sur le marché mondial, une perspective pour le développement de l'industrie textile latino-américaine	R. Haour for ECLA
ST/ECLA/Conf.23/L.59	Actividades de asistencia técnica y de entrenamiento de la Secretaría del CIAP en el campo de la promoción de exportaciones y de diversificación	ICAP-OAS
<i>3. The small enterprise in the industrial development of Latin America</i>		
ST/ECLA/Conf.23/L.49	La pequeña industria en América Latina: un análisis preliminar	ECLA
ST/ECLA/Conf.23/L.14	Issues and policies in the promotion of small-scale industries	CID
ST/ECLA/Conf.23/L.52	The Role of Small Manufacturing Enterprises in the Balanced Economic and Social Development of Latin America	ILO
IV. PROBLEMS RELATING TO THE TRANSFER OF KNOW-HOW, APPLIED TECHNOLOGICAL RESEARCH AND TECHNICAL ASSISTANCE		
<i>1. The transfer of know-how from abroad and the adaptation of methods and equipment to conditions in Latin America</i>		
ST/ECLA/Conf.23/L.12	Conocimiento técnico necesario para la industrialización de países poco desarrollados y obstáculos que se oponen a su transferencia	E. Orosco for ECLA
ST/ECLA/Conf.23/L.34	La tecnología actual y los obstáculos a su incorporación en la industria siderúrgica latino-americana	A. Martijena for ECLA
ST/ECLA/Conf.23/L.48	O nível técnico e as modalidades de transferência de conhecimento técnico do exterior na indústria química do Brasil	K. Politzer for ECLA
<i>2. Applied technological research in industry</i>		
ST/ECLA/Conf.23/L.6	Research on pulp and paper in Latin America	ECLA/FAO/BTAO Advisory Group
ST/ECLA/Conf.23/L.44	Problemas que requerem pesquisas tecnológicas na indústria siderúrgica latino-americana e reflexões sobre ação necessária	L. Correa da Silva for ECLA
ST/ECLA/Conf.23/L.53	Automation in developing countries	ILO
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ST/ECLA/Conf.23/L.27	United Nations technical co-operation activities for industrial development	CID
ST/ECLA/Conf.23/L.61	Training of Technical Personnel for Industrialization in the Developing Countries	CDI
ST/ECLA/Conf.23/L.54	Manpower Planning and Vocational Training	ILO
ST/ECLA/Conf.23/L.55	ILO Productivity and Management Development Programmes in Latin America	ILO

<i>Symbol</i>	<i>Title</i>	<i>Submitted by</i>
ST/ECLA/Conf.23/L.42	A Note on Technical Co-operation in the Field of Industrial Development of D.A.C. Member Countries with Latin America	OECD
ST/ECLA/Conf.23/L.56	Aplicaciones de los radioisótopos en la industria	IAEA
ST/ECLA/Conf.23/L.62	Background information on AID's activities in the field of industrial development in Latin America	AID
V. THE INTERNATIONAL SYMPOSIUM ON INDUSTRIAL DEVELOPMENT AND INDUSTRIAL DEVELOPMENT IN LATIN AMERICA		
ST/ECLA/Conf.23/L.10	Progress report on symposia on industrial development	CID

Annex IV

REPORT OF THE REVIEW CONSULTATION ON PULP AND PAPER DEVELOPMENT IN LATIN AMERICA

Introduction

1. The Review Consultation on Pulp and Paper in Latin America was held at Santiago, Chile, from 17 to 22 March 1966.

2. The aims of the meeting were to evaluate the progress made since the Latin American Meeting of Experts on the Pulp and Paper Industry, which took place at Buenos Aires in 1954, to review the present situation of the industry as regards markets, investment, expansion programmes and factors influencing the efficiency of its operation, to discuss the need for a further meeting on the development of the pulp and paper industry in Latin America, and to adopt the necessary recommendations on the most important subjects dealt with during the present meeting.

3. The meeting was attended by representatives of the following countries: Argentina, Brazil, Canada, Chile, Colombia, Cuba, the Dominican Republic, Ecuador, France, Guatemala, Honduras, Mexico, Peru, Surinam, Trinidad and Tobago, and Venezuela.

4. The following countries sent observers: Argentina, Austria, the Federal Republic of Germany, Paraguay, Poland, the United Kingdom of Great Britain and Northern Ireland, the United States of America, Uruguay and Yugoslavia.

5. Also present were representatives of the Permanent Secretariat of the General Treaty on Central American Economic Integration (SIECA), the Latin American Free-Trade Association (ALALC), the Organization of American States (OAS), the Inter-American Committee on the Alliance for Progress (ICAP), the Inter-American Development Bank (IDB), the Latin American Institute for Economic and Social Planning, Atlantic Community Development for Latin America (ADELA) and the Central American Bank for Economic Integration (BCIE) (see the complete list of participants in appendix I).

6. Mr. José Antonio Mayobre, Executive Secretary of the Economic Commission for Latin America, welcomed the participants and observers. In his statement, he stressed the extraordinary development of the pulp and paper industry in the region over the last five years, during which there had been an increase of 50 per cent in the production of all types of paper and paper-board and of 100 per cent in the production of pulp. As the shortage of capital was one of the factors hampering the industry's growth, it was most important, in planning the future development of the sector, to pay particular attention to the considerable economies of scale obtainable in many branches of the industry.

In view of the fact that in many cases the domestic markets precluded the existence of large-scale plants, an effort should be made to bring about regional market integration so as to make for efficient low-cost production and avoid the misuse of capital and other production resources owing to limited competition.

7. On behalf of Mr. Hernán Santa Cruz, Assistant Director-General for Latin American Affairs of the Food and Agriculture Organization of the United Nations (FAO), Mr. Philippe Cochin, Deputy Regional Representative of FAO, welcomed the participants in the name of the Director-General.

8. He drew attention to the importance of paper in the economic, social and cultural development of all countries, and pointed out that in certain countries with large forest resources, forest industries, and, above all, the pulp and paper industry, played a vital role. That was not the case in Latin America, however, although it was one of the most highly forested regions in the world. Accordingly, its forest resources should be used progressively, with a view to freeing the countries of the region from their economic dependence upon one or a limited number of mineral or agricultural commodities. Latin America's paper industry had made great strides since the Second World War: in 1948-52 the average apparent consumption of paper was 1.3 million tons annually, average per capita consumption was 8.4 kilogrammes annually, and the region depended on imports to cover 44 per cent of its needs. The figures for 1964 were 3 million tons, 13 kilogrammes and 27 per cent, respectively, while the estimates for 1975 were 7 million tons, 24 kilogrammes and 18 per cent. In addition to intensifying the domestic use of forest products, steps should be taken to encourage exports, since products of that kind were usually easier to export than those of other branches of industry, particularly as the steadily increasing shortage of timber in Europe and Japan opened up encouraging prospects for Latin America. Sales to countries inside or outside the region would help to obtain the maximum benefit from forest production and economies of scale. In programming the industry's development, it should be borne in mind that it differed from other industries in being based on renewable resources, whether natural forests or plantations. FAO's main aim was to ensure that proper use was made of those resources so that the fullest possible economic and social benefits could be reaped from them. The co-operation between FAO and ECLA in their efforts to accomplish this had borne fruitful results, and was expected to be even closer in the future as the ECLA/FAO/BTAO Pulp and Paper Advisory Group had been reinforced and the joint programmes undertaken by FAO, the Inter-American Development Bank (IDB) and the International Bank for Reconstruction and Development (IBRD) had reached the operative stage.

9. At the first meeting of the Review Consultation, the following officers were elected: Chairman: Mr. Jorge Catepillán

(Chile); Vice-Chairman: Mr. Arturo E. Tangarife (Colombia) and Rapporteur: Mr. José Brustia (Argentina).

10. The agenda was adopted and is included in the present report as appendix II.

11. The report of the Review Consultation on Pulp and Paper in Latin America was adopted on 22 March 1966.

ACCOUNT OF PROCEEDINGS

I. PROSPECTS OF THE PULP AND PAPER INDUSTRY IN LATIN AMERICA

A. Past development

12. In most of the Latin American countries the pulp and paper industry began simply as an industry for processing imported pulp and local waste paper, in other words, there was no simultaneous establishment of local capacity for the manufacture of pulp.

13. The paper mills were built near consumer centres — where waste paper could be obtained easily — and were small because of the limited scale of demand. Under the protection of customs duties levied on imported paper but not on pulp, some of those enterprises expanded through a succession of purchases of equipment that was sometimes inclined to be out-of-date. At the same time, new small-scale plants were set up to satisfy marginal demand, especially for wrapping-paper and paperboard, which the existing mills could not produce in sufficient quantity. Later on, the increasing difficulty of obtaining foreign exchange for importing the raw material speeded up the integration of the existing paper mills.

14. In the past ten years, with the expansion of the market, the position changed radically. Large-scale non-integrated pulp mills and integrated paper mills made their appearance in the vicinity of the sources of raw material, far from the major consumer centres.

15. The industry's pattern of development has shaped the present situation in which the existing pulp and paper mills are far too small. In 1964, only seven out of a total of 235 pulp plants and only six out of 295 paper mills had a capacity of over 200 tons a day. The average size of the pulp and paper mills fell far short of what was considered to be the minimum economic size in more developed countries.

16. The situation was aggravated in the case of paper by the fact that the mills tended to increase their capacity through the successive addition of small machines. This meant that a large number of operatives were needed with the result that in spite of the low wages paid in the region compared with those in the industrialized countries, labour has a heavy incidence on manufacturing costs.

17. Although the industry came into being at the beginning of the century, it developed slowly and the region had to depend to a great extent on external supplies to satisfy growing demand. In fact, in 1945 production of pulp amounted to only 100,000 tons and that of paper and paperboard to 500,000 tons, which respectively represented 25 per cent and 40 per cent of apparent consumption.

18. In the past twenty years, however, the industry's growth has been stepped up and by 1964 production figures were 1.3 million tons of pulp and 2.2 million tons of paper which covered respectively 78 per cent and 73 per cent of the demand for those products. The difference between the growth of the finished product and of the raw material has been a salient feature of the industry's development in recent years, and a sign of its progressive integration in the sense that the region is becoming less dependent upon supplies of pulp from other parts of the world.

19. In spite of the noteworthy development of the pulp and paper industry, there are still three countries that do not manufacture paper or paperboard, and nine that produce no pulp. The production and consumption of pulp and paper in the region is concentrated in Argentina, Brazil and Mexico, which together account for approximately 70 per cent of the Latin American total.

20. The participants considered that the most outstanding developments in the region over the last few years were the change in the position of Chile, which, from being an importer, became a net exporter of pulp and paper by making use of its radiata pine plantations; the expansion of pulp production in Brazil, which enabled that country to stabilize its trade balance for pulp in 1964 after being the region's leading importer; the establishment of Cuba and Venezuela as producers of pulp from bagasse; the installation in Colombia of the first non-integrated pulp mill using tropical hardwoods; the great strides made in the technology of bagasse utilization in Mexico; and the impressive increase in the consumption of corrugated board boxes in Ecuador and Central America as a result of the new type of packing used for banana exports.

21. Latin America possesses huge fibrous resources, but only a small proportion is used in the manufacture of pulp and paper. Most of the 1,000 million hectares of forest in the region consists of tropical or semi-tropical hardwood species, which are just beginning to be exploited for the production of pulp and paper; hence, the bulk of the short-fibre wood used in the region is obtained from plantations (eucalyptus in Brazil and salicaceous species in Argentina).

22. The conifer stands are in the main, fairly depleted or in places where exploitation is difficult, while others, again, (in some of the Central American countries) have never been exploited. The scarcity of softwoods has led several countries to plant large areas of land with foreign species, in particular, Chile, which with its 250,000 hectares of pine has managed to supply an efficient pulp and paper industry.

23. Because of the conditions prevailing in the region, it has been forced to resort increasingly to non-traditional fibrous resources, chiefly sugar-cane bagasse. Unfortunately, as these yield a short-fibre pulp which has to be mixed with varying proportions of long-fibre pulp for the manufacture of certain types of paper, Latin America is still dependent upon imports to meet part of its demand. The sum of these imports has remained at around 350,000 tons annually.

24. It was decided to examine the question of newsprint separately because of its importance for the region. Latin America has reached a far higher degree of self-sufficiency in other types of paper and paperboard than in newsprint. In 1960 production amounted to some 150,000 tons, or 22 per cent of consumption and in 1964 output was 220,000 tons, or 30 per cent of consumption.

25. Only five countries of the region — Argentina, Brazil, Chile, Cuba and Mexico — have the installed capacity to produce newsprint. But only Brazil and Chile produce it in large quantities, the other three countries preferring to use part of their capacity to manufacture other types of paper with a higher rate of return.

26. The unfavourable conditions for producing newsprint in Latin America are due to the strongly adverse influence exerted by a combination of factors, including: (a) restricted domestic markets that make it impossible to have economies of scale, which is a particularly important factor in the manufacture of newsprint; (b) the high cost of electric power in contrast to the rates in the major producing centres; (c) the scarcity of softwoods that could be economically extracted; (d) very low customs duties or total exemption in the majority of the Latin American countries, and preferential import tariffs; and (e) capacity in excess of world demand, with the consequent stabilization of world prices since 1957, despite the rise in manufacturing costs.

27. As it is unlikely that all these adverse factors will change substantially for the better within the next few years it is difficult to foresee a radical alteration in the situation of newsprint production in Latin America. Nevertheless, the problem of limited markets might be solved through regional integration, while proper development of the conifer plantations would help to make softwoods available to various Latin American countries at a reasonable cost.

28. The possibility of producing newsprint from bagasse or other short-fibre raw materials has been under consideration for some time and research and experiments have been carried out to explore the question.

29. The participants agreed that it was difficult to produce newsprint economically solely on the basis of chemical pulp from bagasse. They also recognized the progress made by Mexico in technological research on the manufacture of newsprint from a mixture of chemi-mechanical bagasse pulp, groundwood and long-fibre chemical pulp.

B. Future trends

30. The meeting agreed that demand was likely to increase substantially. The region will probably consume nearly 5 million tons of paper and paperboard in 1970, and 7 million tons in 1975, which means that apparent consumption will double between 1960 and 1970 and climb by 43 per cent in the following five years. These figures do not include future demand for corrugated board boxes for packing bananas for export.

31. Latin America would have to make an effort to raise production by a considerable amount to meet projected demand, since if the latter has to be covered by imports the estimated consumption figures would be difficult to attain.

32. The projections of production, imports and apparent consumption of paper and paperboard in 1970 are respectively 3,653,000 tons, 1,278,000 tons and 4,931,000 tons.

33. The figures have been obtained by projecting demand and comparing the result with the production levels that could be achieved in each country if the proposed increases were made in capacity. The production figures for 1975 are based on the hypothesis that the volume of imports would be the same as in 1970 and that the balance of demand in 1975 would be covered by regional output.

34. The figures for 1975 would be 5,771,000 tons for production; 1,278,000 tons for imports, and 7,049,000 tons for apparent consumption. Thus, Latin America would not have to depend greatly on imports, save in the case of newsprint.

35. Projections of apparent consumption indicate that in 1970 the region would have to import some 800,000 tons of newsprint, which, at current prices, would entail an expenditure of 120 million dollars.

36. The participants considered it of vital importance that studies on the use of local resources in the manufacture of newsprint should be intensified in order to solve the main problem besetting the region in the pulp and paper sector.

37. It was estimated that in order to attain the paper and paperboard production targets, 2,703,000 tons of pulp would be needed in 1970, and 4,422,000 tons in 1975, of which only 193,000 tons would be imported in each of those years. It was noted that the region's dependence upon imports would thus drop sharply from 373,000 tons in 1964 to 193,000 tons. Of the latter, 115,000 tons would be long-fibre chemical pulp. The reduction in imports would be made possible by the considerable increase in Chile's exports and the plans for expanding the production of long-fibre pulp in the countries possessing conifer stands (Argentina, Brazil, Mexico and Central America).

38. The participants agreed that in order to attain the production targets envisaged, supplies would have to be drastically increased. The principal raw materials needed would be:

	1962-63	1970	1975
Softwoods (solid m ³) . .	2,700,000	6,300,000	8,700,000
Hardwoods (solid m ³) .	560,000	1,600,000	3,900,000
Dried bagasse (tons) . . .	540,000	1,500,000	2,700,000

39. There would tend to be a larger percentage increase in the use of hardwoods and bagasse, but even so conifer needs would be substantial. There would be no major difficulty in obtaining bagasse and tropical woods, but the position with regard to conifers is not very clear. Although the estimated quantities required would actually exist, some doubt remains as to whether the cost of that timber would be compatible with the price of the finished product.

40. It was estimated that some 600 million dollars would be needed to build the proposed mills in 1967-70. This is only the investment in the plant itself, and does not include the infrastructural costs or the investment in forests and plantations.

41. The secretariat presented a theoretical study on the way in which the region should prepare for the expected production increase of about 2,100,000 tons of paper and paperboard and 1,700,000 tons of pulp in 1970-75. According to the theory put forward, about 825 million dollars could be saved in investment, and a further saving of some 250 million dollars obtained through the reduction of manufacturing costs if the plants constructed were of a more economic size than the average mill existing in the region.

42. Having regard to the fact that one of the problems hampering the development of Latin America's pulp and paper industry was the shortage of capital, the participants recommended that due consideration should be given to the proper application of economies of scale in the future development of the industry, on the basis of a study of prevailing conditions in each country.

43. Thanks to certain tariff reductions effected in ALALC, intra-Area trade in specific pulp and paper products had increased considerably from 1964 to 1965. An encouraging development was the export of paper — although still on a small scale — from Argentina, Colombia and Mexico, mainly to their ALALC neighbours, to say nothing of the established pulp and paper trade in Brazil and Chile.

44. There were heartening prospects of increasing the regional trade in pulp and paper products, particularly newsprint and long-fibre pulp, of which Chile expected to export large quantities during the next few years. The prospects were less bright with regard to trade in the remaining products, since the majority of the Latin American countries were large-scale producers of paper and paperboard and satisfied a large proportion of domestic demand, a fact which made it difficult to grant preferential tariffs for those products. Cards for data-processing machines constituted an exception, as Argentina and Chile had installed plants with sufficient capacity to meet the region's total demand, under the protection of customs tariff concessions.

45. The participants recommended that the possibility should be explored of distributing among the various countries the production of special types of paper that were now imported, since their manufacture was seriously handicapped by the size of the domestic markets, a difficulty which could be obviated by providing access to a broader regional market.

46. It was pointed out that the circumstances under which the pulp and paper industry had been established had had an important influence on its present state, which left much to be desired. However, in the last few years steps had been taken to modernize and expand the plants as a result of the drive of some of the more active entrepreneurs.

47. It was considered that it would be difficult for the existing situation to change radically without some stimulus from abroad. Hence, it was recommended that the necessary conditions for effective competition be created by promoting the construction of new plants of optimum size and the gradual reduction of the barriers to intra-Area trade to levels which should be carefully considered. Such work should proceed within the framework of ALALC.

48. For action of that nature to yield the hoped for results, it would have to be accompanied by supplementary measures to help the existing mills to adapt themselves to the new competitive conditions. Such measures would include: (a) credit facilities for the modernization and expansion of mills; (b) tax incentives for promoting the amalgamation of enterprises of uneconomic size and the integration of paper mills; (c) an increase in the technical assistance facilities extended to the industry; and (d) intensive personnel training courses.

49. The application of one of those measures by itself would reap only a fraction of the benefits that might be obtained. It was therefore essential to undertake joint and co-ordinated action to speed up the transformation of the pulp and paper industry and the current import substitution process.

50. The meeting attached great importance to the discussion of the possibilities for exporting pulp and paper to countries outside the region. In that respect, it was noted that owing to the rapid development of world pulp manufacturing capacity, marketing conditions might continue to be difficult for some years to come for mills which were not selling their products to a protected market. However, the long-term prospects were considered to be more hopeful. In spite of the growth of demand in Latin America, it was thought likely that pulp and paper exports to countries outside the region could be developed on the basis of favourable production costs thanks to the low cost of raw materials and exports to protected markets. It was also established that regional self-sufficiency was not a prerequisite for exports to other parts of the world. Those points of view ought to be taken into account by the secretariat in preparing the final version of a document on export possibilities.

51. The participants expressed a desire that ECLA and FAO should help to demonstrate the sector's vast development possibilities in the region if proper use were made of the forests and plantations.

52. There was general agreement that the region would benefit greatly from the co-operation of international credit agencies in financing plantations and improving the infrastructure.

53. The participants listened with great interest to the report made by the representative of Brazil to the effect that his country had embarked on a search for new techniques with a view to using its eucalyptus plantations in the manufacture of newsprint so as to reduce production costs and market distortions.

54. It was recommended that consideration be given to the problem of transport in the use of bagasse, since paper or pulp mills could not always be located near sugar plantations. Stress was also laid on the need to make full use of the natural resources available so as to cut production costs, and to carry out regional studies in order to determine the sites offering the best possibilities for the development of the pulp and paper industry.

55. The observer from the Paper Manufacturers' Association in Uruguay expressed interest in the application of some kind of temporary preferential treatment or of specific quota systems as a means of promoting intra-Area trade, and stated that the proposal would be transmitted to ALALC.

56. The observer from the Permanent Secretariat of the General Treaty on Central American Economic Integration (SIECA) said that the Central American Common Market was already a *fait accompli* and would be virtually in full operation by mid-

1966 when tariff equalization reached the level of 95.7 per cent in the free-trade area. As production capacity envisaged for the area exceeded Common Market demand, possibilities of exporting to Latin American markets should be sought. One of the requisites for such trade was the granting of preferential tariffs to Central America. He further emphasized the desirability of a region-wide study on existing tariffs and their incidence, with a view to harmonizing them so that Latin America could present a concerted position *vis-à-vis* the rest of the world.

57. The ALALC observer described the way in which the Association was tackling its pulp and paper studies. He referred in particular to the provisions adopted with respect to industrial development, the objectives pursued by the study groups and the stage reached in the work of the Pulp and Paper Group.

58. The representative of Guatemala said that his country was planning to set up a plant with an annual capacity of 100,000 tons for the manufacture of long-fibre pulp, paper and paper-board. The first stage of the project would require an investment of 43 million dollars, while the second stage would involve the establishment of a newsprint plant at an investment cost of approximately 15 million dollars.

59. The representative of Honduras informed the meeting that his country had made considerable headway with a feasibility study for the installation of an integrated kraft paper mill with an annual capacity of 100,000 tons.

II. ECONOMICS OF PULP AND PAPER MANUFACTURE UNDER PREVAILING LATIN AMERICAN CONDITIONS

60. The discussions on this item were based on the document entitled *Economics of pulp and paper manufacture under average Latin American conditions* (ECLA/BTAO/FAO/PREP/CONS/PAPER/II/1) presented by the Advisory Group in English only.

61. In pulp and paper production, considerable economies of scale were shown to exist between mill sizes with a respective daily output of 50, 100, 200 and 300 tons. Estimates of unit costs were based on the use of short-fibre woods (eucalyptus, mixed tropical woods and bagasse) as raw materials for the manufacture of bleached and unbleached pulp and paper, while the study of cost factors was based on averages taken from a large volume of data concerning current operating practices used in various factories in the region.

62. The direct unit cost (cost of raw materials, power, labour, supervision) of the products concerned was found to be low in every case, as a result, among other things, of the generally low value in the region of the fibrous raw materials used. Labour costs were also found to be relatively low in comparison with those in North America; even if allowance were made for the fact that Latin American mills normally employed more manpower, labour costs based on the unit cost of the product were still much lower than in many other parts of the world.

63. On the other hand, the indirect factors of total unit cost were very high — as is characteristic of regional industry because of the generally high capital costs — compared with those in the industrialized areas. Moreover, in most of the new pulp and paper mills total investment was greater than in industrialized areas, where freight, insurance, personnel training and other costs were lower. As the indirect costs per ton of pulp or paper output at new well-designed mills were estimated to be 50-60 per cent of the total unit cost, it was considered important to reduce investment costs as much as possible.

64. The amount of interest payable on the capital invested had a marked effect on the total unit cost. A highly important feature of international credit was its cost, which was generally lower in terms of interest and other charges than that of locally-extended credit. Bearing in mind the heavy investment involved

in new pulp and paper enterprises, the meeting considered that international credit was one of the most important instruments for the industry's future development.

65. The participants recommended that a study be made of the economies of scale with a view to including high-yielding pulping processes (neutral sodium sulphite and cold caustic soda), as it was considered that, because of the more favourable economies of scale in the production of semi-chemical or chemi-mechanical pulp, those processes could be used to advantage in many small-scale operations.

66. It was further noted that there was a marked discrepancy between the economies of scale in partially integrated mills and in the cases considered in the present report, and it was stressed that a study of partially integrated mills might provide a sounder approach to the question.

67. It was agreed that the production of other types of paper (besides those already mentioned) was also very open to the influence of economies of scale, e.g., newsprint. It was also noted that not only the market but also the conditions for the supply of raw materials were factors affecting the economies of scale obtainable.

68. In brief, the participants agreed that the effect of economies of scale was of prime importance for the new industries and that their merits should be considered in the light of: (a) the domestic market, with due regard for the specific conditions prevailing in each country; (b) the market of the ALALC countries; and (c) markets outside the ALALC area.

69. There was general agreement that the determination of optimum plant size should not only be based on the present year's markets and economies but should also take a longer view so as to ensure that a mill would provide the maximum economic benefit during a given period.

70. Lastly, a statement was made by one of the Argentine observers on the question of establishing plants of economic size. Latin America lacked an efficient and economic infrastructure in transport and communications, and that precluded the operation of single large-scale plants. It might be possible to set up semi-chemical pulping mills on a smaller scale, and their simultaneous establishment in several countries would be both economic and profitable and help to remedy the shortage of chemical pulp.

71. Another Argentine observer proposed that the studies on economies of scale should be based first, on a criterion whereby a balance would be sought between the concept of economic size and optimum size (which might eventually become economic) in countries possessing exploitable economic resources and suitable infrastructural and market conditions for developing their pulp and paper industry; and, secondly and more fundamentally, that the concept of regional integration should cover the equitable distribution of the benefits and advantages obtained thereby.

III. QUESTIONS RELATING TO SMALL-SCALE INDUSTRY

72. Two reports on the small-scale pulp and paper industry were presented at the meeting: *Aspectos económicos y condiciones de operación de pequeñas plantas de celulosa y papel elegidas en Argentina y Brasil* and *Aspectos económicos de la modernización y expansión de pequeñas plantas de celulosa y papel, con especial énfasis en los casos de Argentina y Brasil*.

73. It was pointed out that, while several of the small mills under consideration made a profit, others were operating at a loss or with a very small profit margin. The prosperity of some of the small mills could be partly attributed to market protection and their integration with paper making industries, but was often due to the fact that devaluation in the plant was so heavy that costs amounted to only a fraction of the norm in a new plant with first-class facilities.

74. The second report dealt with the technical and other measures that could improve the operating conditions of mills. It was noted that in all the mills studied there were technical factors that reduced total profits, in some cases with serious results. The two studies indicated that if the appropriate technical improvements were introduced, profits could be raised well above the investment involved. Such measures could well result in greater manufacturing efficiency, better quality and, lower sales prices, or in an increase in over-all capacity, the bottlenecks being removed by means of relatively low investment.

75. It was noted that careful investment such as that practiced in certain countries of the region had given satisfactory results in the case of small-scale mills. In Brazil a special fund (FIPME) had been set up under the administration of the National Economic Development Bank to aid small and medium-scale industry. The representative of Argentina gave several similar examples of financial aid granted.

76. It was observed that the decision taken by the small mills in Uruguay to specialize their production had been particularly effective in restoring the industry's level of profits by reducing the number of types and distributing the manufacture of selected types of paper among the mills parties to the agreement. The standardization programme had now reduced the number of types of paper produced by each mill from over 60 to 10 or 15.

77. In spite of the difficult position of the small mills in general, some which had succeeded in maintaining a reasonable rate of return by specializing in products that were difficult to manufacture, or through other exceptional measures. In all probability, certain small plants manufacturing specific products would continue to form a supplementary branch of the industry, whereas others would have to be transformed or disappear. It was pointed out that specialization continued to offer a great many possibilities in the industrialized countries.

78. It was further noted that the small mills had an important role to play in the training of technical employees and workers, and in creating an awareness of the technological problems faced by the country in the pulp and paper sector.

79. The meeting concluded that a programme for helping to rationalize the small mills should be co-ordinated with a longer-term plan for the development of larger mills, with a view to preventing the future establishment of inefficient plants that would slow up the industry's progress in general.

IV. STATISTICAL CLASSIFICATION AS REGARDS PULP AND PAPER

80. The participants considered that it was imperative for all the countries of the region to have uniform statistics on which to evaluate the future prospects of Latin America's pulp and paper industry.

81. The secretariat presented, as an information paper, the latest classification of production and trade statistics prepared by the Working Group of the Special Committee on Pulp and Paper of the Organisation for Economic Co-operation and Development (OECD). The new classification had been provisionally adopted by the countries members of the Organisation, which together accounted for approximately 85 per cent of world output and 80 per cent of world trade in pulp and paper products. As it had also been proposed for adoption by the United Nations Statistical Office, the Brussels Customs Co-operation Council and FAO, it would be advisable to study the possibility of its application in the Latin American countries.

82. Note was taken of the effort made by ALALC to expand and improve statistics in the member countries, and it was recommended that, in so far as was possible, the ALALC classification should be extended to the rest of the Latin American countries,

and that the production and trade data for the region should be grouped in such a way as to be compatible with the OECD classification,

83. It was agreed that the industrial censuses should provide more details on the pulp and paper industry and that uniform standards should be fixed for the data on capacity included in the surveys.

84. There was a consensus of opinion that production data should be standardized, i.e., it should be expressed in terms of either gross output of the machines or net saleable output. It was further recommended that the statistics presented by the ECLA/FAO/BTAO Pulp and Paper Advisory Group for Latin America should list the exports from each country in a separate group.

85. The representative of Chile proposed that: (a) the regional statistics for production and trade (exports and imports) should make a clear distinction between long-fibre and short-fibre chemical pulp; (b) the statistics for chemical pulp should be classified by the quality of the fibre, in terms of its uses, instead of by the processes for obtaining it. In that respect, the Chilean delegation requested that a study be made to determine whether it was justifiable to maintain the distinction between sulphite and sulphate pulps. If not, its elimination would probably help to increase trade; and (c) national trade statistics should include pulp and paper products in transit.

V. PULP AND PAPER RESEARCH IN LATIN AMERICA

86. The meeting showed great interest in the document on the present state and development of research on pulp and paper, and the services related to the technology and processes used in the industry. A study was made of the research facilities of the most important institutes in the region possessing pulp and paper research sections.

87. Latin America's pulp and paper industry, concerned as it had been with expanding its capacity, had had relatively few opportunities for technical consultation and for applying the results of research to its development process. Expansions had been based conventionally on such factors as the market and raw materials, with technological factors only incidentally taken into account. Most of the know-how used for developing the industry continued to be imported.

88. There were many signs that the situation was changing, in that technological factors would have a much stronger influence on operational activities in the future. Know-how was acquired through practice in the plant itself, or through consultations abroad. The technical factors involved comprised technology; process and quality control; new techniques for pulping, utilization of fibre and paper manufacture; new uses for products; products with unusual properties; and the methodology of the production processes.

89. Applied research was a highly significant aspect of technical advisory services. A large proportion of the advisory assistance should therefore be based on laboratory work and the results obtained by pilot plants.

90. It was considered that the former practice of importing technical know-how and neglecting the potential offered by the national research institutes could hardly continue. In order to make the most of the research potential in the field of pulp and paper, it was necessary to determine which were the industry's real technical production problems. If local research were turned to account it would do much to enrich national experience by helping to develop industrial efficiency and diversify production.

91. It was considered in the national interest to establish State research institutes and keep them alert to the technical problems arising in industrial operations or in certain aspects of industrial

expansion. It was natural for industry to help finance such institutes, and it was agreed that their joint financing would be in the interests of both the country and the industry.

92. The system of joint financing could take many different forms. If a number of research groups were carrying out research on pulp and paper, the question of financing by the industry could be reduced to determining how much it should contribute to the budget, organization and work programme of the institutes concerned.

93. It was noted that industry was responsible for much of the research carried out in Mexico. In view of the size of the pulp and paper industry in Argentina and Brazil, a similar system was recommended for those two countries.

94. It was estimated that the cost of research and related services in Latin America ranged from 0.10 to 0.15 per cent of gross income, which was regarded as completely inadequate for providing satisfactory services, a view that was borne out by an appraisal of the research facilities and the results obtained in the pulp and paper sector. They were neither good enough to be applied to the industry, nor of use at the national level. The same could be said of most of the research undertaken in the Latin American countries with the obvious exception of Mexico, a reservation which served to confirm the conclusion that the facilities for research on pulp and paper in the other countries — whose total production was much larger than Mexico's — was utterly inadequate.

95. The annual investment that would be needed in Brazil and Argentina to raise their research services to the level of Mexico's was estimated to be 550,000 and 400,000 dollars respectively.

96. In short, it was considered that if the cost of research and allied services represented 0.25 per cent of total sales, a process of self-generation would take place which alone would absorb the gradual increase in the work and advisory services requested. Below that figure there would be no such process, and the research would prove relatively more expensive inasmuch as it would be less effective and less systematic.

97. National research with proper financial support was considered to offer a satisfactory basis on which to create a system of regional communication for the regular exchange of results and ideas and the discussion of the progress made in research.

98. The shortage of trained research workers to undertake the wide range of tasks involved, especially in industrial research programmes, was likely to be a serious obstacle to the proper development of the work of the research institutes. Industrial research and related services required a larger and perhaps more experienced staff than most of the national groups engaged in research on pulp and paper.

99. In order to diversify the research facilities and thus equip them to deal with a whole host of industrial problems, it was necessary to obtain technical and financial assistance through international banks and bilateral aid programme with the Governments of North America and Europe.

100. The participants agreed that the following aspects were of immediate and vital interest to Latin America's pulp and paper sector, and considered that, with proper organization, they merited financing by groups of industries or by the industry as a whole: (a) production of chip groundwood of eucalyptus and other fast-growing tropical and sub-tropical species; (b) high-yield pulping processes (semi-mechanical and semi-chemical); (c) advanced processes for pulping bagasse; (d) industrial and economic aspects of pulping and bleaching mixed tropical woods; (e) production of paper at high speeds from mixtures containing a large proportion of short-fibre pulp; (f) the provision of instruments and machinery for the processes involved, and supervision of the said processes, and (g) standardization of laboratory tests and pulp and paper norms.

101. The representative of Mexico gave some basic details of the research conducted by Mexican institutes on pulp production on the basis of the medium to long-fibre *Yucca brevifolia* (the Joshua tree) growing in the desert areas of San Luis Potosi. Research had been undertaken into pulping with small quantities of water, by means of the cold caustic soda process, with lye recovery. Another outstanding aspect of Mexico's research concerned the use of bagasse for newsprint production by means of a two-stage semi-chemical process. The studies were currently aimed at the manufacture of newsprint from bagasse pulp only, a target which Mexico expected to reach shortly. A third field of activity, conducted in a test laboratory, was the development of a new soluble-base sulphite (Mg) process for pulping mixtures of tropical hardwoods. The process had been developed at the request of a private firm and later patented. The wood used had been obtained from the State of Chiapas, where the forests contained some 250 wood species. It was considered that the research work on those lines, combined with the experience gained at the tropical hardwood plant in Colombia and the extensive studies under way in Guayana, Venezuela, were solving the problem of forests with mixed tropical species.

102. The representative of Brazil reported on the steps taken by his Government to encourage technical and scientific research through the creation of a special fund (FUMTEC), administered by the National Economic Development Bank, for the financing of postgraduate courses and pilot research projects.

103. The representative of Argentina recommended the closest co-operation in the standardization of testing methods in the countries of the region. In view of the difficulty of comparing results from different sources, whether obtained through research or quantity or quality control—in purchases of pulp, for instance—it was essential to have a regional system to facilitate the exchange of such information. Attention was also drawn to the need to specify the testing methods used.

104. The meeting took note of the view expressed by the representative of Argentina to the effect that most of the manufacturers in the region sold their pulp either without an official analysis or after an incomplete analysis of their own. The small mills found it extremely difficult and sometimes uneconomic to control such analyses, and to test out small quantities of pulp. There were no official inspectors to control Latin America's imports of raw materials. It was therefore suggested that pertinent regulations should be drawn up, in accordance with regional mill needs, which would take into account the interests of mills purchasing small quantities. That was particularly important whenever imports from outside the region (which were generally sent with quality and quantity certificates) were replaced by Latin American products. In that respect, there were many discrepancies in the definition of norms and in the norms themselves, which made comparison difficult.

105. With regard to the development and standardization of pulp and paper research, the representative of Argentina proposed that international organizations should request the appropriate international financing agencies to set up special credit facilities for the installation or expansion of laboratories in those countries that had attained or were able to attain a given level of development in the pulp and paper industry.

VI. TECHNICAL TRAINING REQUIREMENTS FOR THE PULP AND PAPER INDUSTRY IN LATIN AMERICA

106. The meeting heard a summary of the secretariat report on the need for special programmes for training engineers and technicians for pulp and paper plants. The quantitative and qualitative development of the industry between 1965 and 1975 would require the co-ordinated establishment of technical training schools at the university, technical and vocational levels. The need was

made all the more urgent by the slow improvement in the quality of paper products and the gradual expansion of domestic and regional markets.

107. The total number of persons needed to fill the new technical posts resulting from the total expansion of the industry in the region was estimated at 60-80 engineers and chemists and 120-160 technicians a year, all of whom would be better equipped to carry out their work of plant and process supervision and product control if they were given a detailed knowledge of pulp and paper production processes.

108. The calculations for individual countries showed that the number needed per year in Argentina was 12 technicians and 7 engineers, in Mexico 30-40 technicians and 15-20 engineers, and in Brazil about 40 technicians and 20 engineers, all with a knowledge of pulp and paper technology.

109. At the university level, an optional course in pulp and paper technology would be needed at the main university in Brazil, and a similar course would be desirable in Argentina. In Mexico and Chile courses were already given on pulp and paper problems. The meeting regarded the plans under consideration in Mexico for specialized higher education on the subject as very satisfactory, since the students would be able to take a theoretical course and also do practical work at national research institutes.

110. At the intermediate level, it was estimated that specialized technical schools were needed in Brazil and Argentina, and that they would also be desirable in Mexico, where they would replace the courses offered by the Polytechnic.

111. No changes were proposed in the Chilean schools, because of the small number of technicians needed in Chile, and because two universities were already providing instruction on the subject. One of the universities was working out a more practical programme of technical education.

112. The region undoubtedly needed one or two institutes to provide training at the university, technical and vocational levels, to hold courses in the mills, to give technical assistance and to undertake applied research, under the sponsorship of the pulp and paper industry. Nevertheless, it appeared that the best basis for a regional system of training in that field would be to establish small centres in each country that should operate, as far as possible, in close connexion with the programmes for applied research.

113. The meeting noted that there was no literature on pulp and paper technology in the languages of the region, and urged that translations should be made of such books as could be used in courses at the intermediate and university levels, the two volumes sponsored by TAPPI (Technical Association of the Pulp and Paper Industry) in the United States being the most suitable for that purpose. However, those books required some adaptation, especially as regards subjects of special interest to the region, such as bagasse pulp, semi-chemical pulp, pulp made from tropical woods, chip groundwood, etc.

114. Mention was made of the important role that could be played by national technical associations such as those in Mexico and Argentina.

115. The participants pointed out that it was desirable to aim at the maximum integration of specialized training courses and research in pulp and paper, in order to take full advantage of the investment in machinery, facilities and teachers. In addition to the improvement of the existing schools, a regional centre should be established to train postgraduates in pulp and paper technology. Ideally, the centre should combine teaching with industrial research, but for the moment that would be difficult to achieve.

116. In terms of direct action to improve the technical knowledge of plant workers, the participants recommended a system of training by means of a series of courses in the plants. They took note of a proposal presented by the Chilean industry that

a seminar should be held to work out a system of courses adapted to conditions in Latin America that could subsequently be made available to the other countries.

117. The representative of Argentina recommended that international organizations should consider establishing in Buenos Aires a technical institute to train pulp and paper technicians and confer a degree that would be recognized by the other countries in the region. He also recommended that the competent international agencies should arrange for fellowships to be granted in countries where the industry had reached an advanced level, with a view to providing specialized and higher training for technicians from the various Latin American countries.

118. The representative of Brazil referred to the situation of specialized training in his country, and to his Government's official request for the establishment of a pulp and paper school in the State of São Paulo. The Government was aware of the necessity to join with private industry in setting up a fund to finance such a school. International aid would take the form of technical assistance. The meeting agreed that it was highly desirable to have close co-operation between specialized training and research in pulp and paper.

119. Lastly, it was stated that the training of workers should form part of the regular courses at technical schools of the kind described above.

120. The observer from Uruguay advanced a somewhat different view on the organization of training in pulp and paper. He considered that it was desirable to establish two types of school, one at the intermediate level and another at the university level. Those at the intermediate level could be established in Argentina, Brazil and Mexico, where the industry was most highly developed, while the university level school could be set up in Mexico. To begin with, both types of schools would provide advanced training for technicians working in pulp and paper mills or anxious to enter the industry. The course would be for one year only. Later on, the schools could be expanded so as to provide courses of three to four years, in order to offer a long enough period of training to acquire the complex body of knowledge required by modern industry. In all cases entry to the schools should be preceded by a period of training or work in a pulp and paper mill.

VII. THE FINANCING OF THE DEVELOPMENT OF LATIN AMERICA'S PULP AND PAPER INDUSTRY BY NATIONAL INSTITUTIONS

121. The discussions on this item were based on the document entitled *Financing of the development of Latin America's pulp and paper industry by national institutions* (ECLA/BTAO/FAO/PRP/CONS/PAPER/III/3) prepared by the Advisory Group in English only.

122. The meeting noted that the aim of the document was to give an idea of the possibilities offered by the various countries of financing the pulp and paper industry from domestic sources. It covered Argentina, Brazil, Central America, Chile, Colombia, Ecuador, Paraguay and Venezuela, and the system of financing in Peru was also described in the course of the debate.

123. It was deemed essential that domestic credit should be made available for the development of the industry, and that the concession and management of such credit should be placed in the hands of national officials, who best understood the development needs in specific areas and in the country as a whole and were therefore able to use the funds in the most effective way possible. From that standpoint, it was immaterial whether the funds were domestic or foreign in origin.

124. The total period for amortization of loans to finance the construction of new industrial units ranged from five to twenty years, in the cases considered in the document. The lowest rate of annual interest on the unpaid balance was 6 per cent and

the highest 15 per cent. In many cases the recipient had to pay 1 or 2 per cent as a charge for the opening and supervision of the credit. The portion of the total investment for which financing could be obtained ranged from 50 to 100 per cent. As a general rule part of the working capital was also provided. The loan frequently covered a wide range of needs, including preinvestment and engineering studies, the only items normally excluded being refinancing of debts and the financing of the repairs to plant and machinery. The institution providing the loan usually furnished the necessary guarantees to cover external financing as well.

125. In some countries an exchange adjustment was applied to loans to compensate for inflation, in accordance with the changes in the purchasing power of the currency concerned.

126. The financial institutions were also empowered to participate as shareholders in new enterprises, and in some cases bought up all the stock. In certain countries, they were also empowered to defray the cost of building the plant, and subsequently to rent it to the company concerned with an option to purchase.

127. On the whole, the meeting considered that the domestic financing of pulp and paper industries was well administered, in accordance with established rules and practices, which varied little from one country to another.

128. The participants noted that some countries had established special credit and financing institutes to finance small and medium-scale industry, and that in many cases the large-scale projects were financed from abroad, in the form, for example, of the provision of machinery.

129. Since the integration of small mills often provided better operational conditions, even though the size of the mill made it difficult to obtain the advantages inherent in economies of scale, the meeting recommended that, when granting loans to existing medium and small-scale mills, national financial institutions, should encourage integration and specialization and, in the case of new enterprises, should regard economies of scale as one of the basic criteria.

130. With respect to the financing of tree planting and of the infrastructure that was so often needed when a pulp and paper plant was being built, the participants considered that local funds were usually inadequate, and recommended that international financial institutions provide the necessary resources for such projects, preferably in the form of long-term loans at low interest. In that connexion it was considered advisable to determine how economies of scale and an equitable distribution of earnings were to be calculated when new plantations were being established in areas in which agricultural and forestry development were to go hand in hand.

131. The meeting also noted that the beneficiaries of certain foreign credit lines had a limited field of choice as regards the machinery and equipment they wished to purchase for their mills. That was justifiable when manufacturers produced machinery that was specially adapted to particular conditions, but since modern technology was public property, there should be complete freedom of choice in selecting machinery.

132. The meeting drew attention to the fact that domestic financial policies were often out of step with regional integration needs. For example, such policies might permit the establishment of competing mills within a single market area in excess of the restricted number of mills that it was able to support. It was clearly necessary to link up and reconcile such policies in order to avoid investment from which reasonable returns could not be obtained once regional integration had been achieved.

VIII. PACKAGING AND INDUSTRIALIZATION IN LATIN AMERICA

133. The meeting discussed the importance of wrapping paper for the industrialization process in Latin America. As wrapping

paper constituted a high proportion of total pulp and paper consumption, it would be of special interest to make a study of the market for that product.

134. The participants expressed satisfaction with the preliminary study submitted on the subject. It dealt mainly with demand for corrugated paperboard and paper bags, which was expected to rise at an annual rate of 8.4 and 5.4 per cent, respectively, over the next ten years.

135. The meeting stressed the fact that rapid economic and technical changes were greatly affecting the packaging methods used in the region. The rapidity of the changes and the lack of reliable statistics hampered studies in that field. Nevertheless it was considered both possible and useful to continue with the studies on packaging, and the secretariat was urged to pursue the work as far as possible. Within the broad field of packaging, it was suggested that consideration be given to the following points: (a) the use of paper bags for sugar packaging; (b) the technical features considered suitable for the various types of packaging and products; and (c) the degree of present and foreseeable replacement of paper by plastic materials, for both economic and technical reasons.

136. The meeting recommended that, for the purpose of facilitating work on the subject, any packaging studies undertaken in the countries of the region should be made available to the Pulp and Paper Advisory Group for Latin America.

IX. THE DISSOLVING PULP INDUSTRY IN LATIN AMERICA

137. The participants discussed in detail the evolution of the dissolving pulp industry in the region. Apparent consumption of dissolving pulp had initially been at a modest level, but between 1960 and 1965 it had accelerated rapidly, increasing by 50 per cent. At first the region had been largely dependent on external sources for meeting demand, but regional production was currently sufficient to supply about 50 per cent.

138. The participants recognized that the region was exceptional in that cotton linters was virtually the only raw material used for making dissolving pulp there, whereas in the rest of the world it accounted for only a fraction of the raw materials used, which consisted, for the most part, of wood.

139. Although nine Latin American countries used dissolving pulp for making various products, only three, Argentina, Brazil and Mexico, actually produced it.

140. In Argentina, output had fallen off considerably in recent years despite an expansion of domestic demand, and even in 1965 was below the 1959 level. The main reasons were a series of adverse factors, including a rise in the cost of the raw material (cotton linters), the obsolete type of machinery used, and the small size of the mills. Those factors had reduced the profitability of production, despite the tariff protection applied. A typical example was a mill with an annual capacity of 20,000 tons that was currently being used for producing other types of pulp.

141. Brazil was the main consumer and producer of dissolving pulp in Latin America. Although Brazil had a large market and adequate resources (eucalyptus), the industry had not developed as well as might have been expected, mainly because of the domestic market depression in 1963 and 1964, and the difficulty of obtaining adequate financing. However, there was reason to believe that by 1967 the adverse factors would have been overcome, and that the construction of the proposed new plant could then be undertaken.

142. Mexico was in a special position as the sole exporter of dissolving pulp in Latin America, but its volume of imports far exceeded its exports. The industry used nothing but cotton linters as a raw material, and the type of dissolving pulp it produced was in great demand in the United States market.

143. Although the region constituted a large market, there was little prospect of an increase in intra-regional trade because many of the Latin American users of dissolving pulp were subsidiaries of international companies that provided them with raw materials.

144. The meeting listened with interest to the conclusions of the study entitled *Prospects for Latin American pulp and paper exports to overseas* (ECLA/BTAO/FAO/PREP/CONS/PAPER I/3/ST/ECLA/Conf.23/L.40), which indicated that there were good prospects of exporting dissolving pulp from Latin America.

145. The meeting recommended that as long-fibre woods were not abundant in some countries of the region, priority should be given to the production of dissolving pulp from the short-fibre woods available in Latin America.

X. CHIP GROUNDWOOD AND ITS POSSIBLE APPLICATION TO NEWSPRINT MANUFACTURE IN LATIN AMERICA

146. The meeting discussed in detail the problems that would be faced by the region in increasing newsprint production in order to avoid the considerable drain of foreign exchange entailed by rising imports. The participants examined the prospects of using the short-fibre materials that abound in many countries of the region. A document submitted to the meeting gave a number of examples of the successful use of pulps made from broadleaved species for newsprint manufacture in mills in other regions. Such methods were relatively new, and the meeting agreed that technical studies on the subject should be continued until a sound body of knowledge had been built up.

147. The meeting noted with satisfaction that considerable research had been done in Mexico on the use of bagasse, and that the work was being continued. The relatively new method of producing groundwood in disc refiners was regarded as offering interesting possibilities for the use of low-cost broadleaved species in newsprint manufacture. The technique was still in process of development but some preliminary experiments in the production of newsprint had been made. The representative of Brazil said that the National Economic Development Bank (BNDE) intended to ask for the help of the United Nations Special Fund in a research project in that field, with a view to arriving at conclusive results. The participants recognized the value of a study of that nature, and agreed that the results would be of great interest to the other countries of the region.

148. It was noted that the production of chip groundwood was of interest in relation to the manufacture of other types of paper than newsprint, and that some experiments had been made to that effect in the region. Although the conclusions reached in a given study could not generally be applied forthwith to other cases, the meeting considered that it would be extremely useful for the Latin American countries to exchange information on the new technique.

XI. RECOMMENDATIONS

149. The secretariat submitted a brief summary of the work carried out by the Advisory Group since its inception in 1955, and asked the meeting to make recommendations on the future work of the Group, and on the agenda for the next pulp and paper conference.

150. The secretariat also informed the meeting that a letter had been received from the Mexican Association of Pulp and Paper Technicians (Asociación Mexicana de Técnicos de las Industrias de la Celulosa y del Papel — ATPC), stating that the Association was interested in having the next regional conference in Mexico, and was taking steps to obtain the Mexican Government's support for its proposal.

151. The representative of Chile submitted the following recommendation to the meeting:

"Considering:

That the analysis of the documents submitted to the Review Consultation on Pulp and Paper Development in Latin America, sponsored jointly by ECLA, FAO and BTAO, show that the region's principal deficit in paper is in newsprint (see document E/CN.12/718/Rev.1, table 14-5);

That, according to these documents, installed capacity in 1964 was 379,500 tons a year, while actual production was 219,324 tons, which means that only 58 per cent of capacity was being used;

That in the projections to 1970 the only increase in capacity proposed is an unspecified plant somewhere in the southern States of Brazil, with an annual capacity of 70,000 tons;

That, according to the above-mentioned projections, by 1970 production in the region will be 423,000 tons, with an installed capacity of 449,500 tons, on the assumption of 96 per cent utilization of capacity, as against the level of 58 per cent referred to above;

That, despite this high level of utilization, it is estimated that, by 1970, the region will have to import 815,000 tons a year at a value of over 120 million dollars;

That, by 1975, if the volume of imports remains unchanged, the region will have to more than double its output of newsprint;

That, in view of this assumption, which was not discussed by the meeting, coupled with the low utilization of installed capacity and slower rate of development in this branch of the paper industry than in the others, there must be additional factors with a bearing on its development that call for more detailed study, even though they have been touched on in the documents submitted;

That the volume of foreign exchange expenditure, which has been estimated on what appears to be an optimistic basis, makes it essential to study this aspect of the paper industry in greater detail;

That the lack of development in the newsprint industry may be due, *inter alia*, to the want of tariff protection and to the marketing policy for this product;

That, in the more economically developed countries, especially France and Italy, measures have been taken by the Government to encourage the development of newsprint production without adversely affecting the interests of the consumer;

That, in view of the magnitude of the newsprint deficit, and the poor prospects of development between 1970 and 1975, as described in the document submitted, there is little likelihood that the increase in output can attain the level adopted in the hypothesis, and that this fact affects the validity of the conclusions in the document submitted;

That the regional pulp and paper industry has shown sufficient initiative and capacity to become self-sufficient, and that the lack of development in the newsprint sector must therefore be due to other causes or factors that it is clearly desirable to investigate thoroughly;

Recommends:

1. That ECLA and FAO should prepare a special report on the existing situation in the newsprint industry, the reasons for its lack of development, and the measures that should be taken to encourage newsprint production in Latin America;

2. That a special meeting should be convened as soon as possible, and no later than 31 December 1966, to study and analyse the report in question, with a view to recommending possible measures to governments;

3. That, in future pulp and paper studies, the subject of newsprint should be treated separately."

153. The second recommendation made by the representative of Chile was as follows:

"Considering:

That the studies and documents prepared by ECLA are very useful for obtaining an extensive advance knowledge of the market that could serve as an incentive to investment in particular branches of the pulp and paper industry in the region;

That, as regards pulp, it is advisable to define the markets according to the process used for pulp production;

That it is also advisable to explore the possibility of replacing one type of pulp by another, for the purpose of determining the real size of exclusive markets;

Recommends:

That ECLA should consider the possible uses and probable substitution of each of the different qualities of pulp."

The foregoing recommendation relates in particular to the replacement of sulphite by sulphate pulp, these being the two most important types of pulp.

153. The representative of Argentina put forward the following recommendation, which was supported by the representative of Ecuador:

"In view of the opinions expressed during the statements made on 17, 18 and 21 March, the Argentine delegation proposes:

That FAO and ECLA should recommend greater willingness on the part of international financial agencies, in particular IDB, Eximbank, the International Finance Corporation, AID, and other competent bodies, to grant loans for projects for the expansion and development of forestry and of the pulp and paper industry in Latin America, with due regard for the advantages offered by each country in terms of climate, ecology, techniques and economic situation."

154. The representative of Cuba made the following recommendation:

"Considering:

That many countries in the region could develop a paper industry on the basis of the bagasse obtainable from the Latin American sugar industry;

The cost of bagasse in terms of its fuel replacement value at the sugar mills;

The possibilities of obtaining surplus bagasse from sugar production for use in the pulp and paper industry;

Recommends:

That the Pulp and Paper Advisory Group should undertake a study on the economy of the baling, storage and transport of bagasse for use as a source of pulp."

155. The observer from Uruguay submitted the following recommendation:

"With respect to report IV/2 on packaging and industrialization in Latin America, the Pulp and Paper Advisory Group is recommended to continue its studies on this subject in order:

1. To determine the technical characteristics considered suitable for the various types of packaging and products;

2. To determine the present and foreseeable replacement of paper by plastic materials, from both an economic and a technical standpoint."

156. The representative of Ecuador submitted the following recommendation to the meeting:

"Bearing in mind:

That the conifer resources of the region are either exhausted or so located as to make their exploitation difficult, and that, as a result, it has become increasingly necessary to make use of non-conventional fibre resources;

Recommends:

That the Pulp and Paper Advisory Group should intensify its studies on the use of non-conventional resources (mixed tropical hardwoods, bagasse and banana-stalk fibre) for the production of paper, corrugated paperboard and paper products."

157. The representative of Guatemala submitted the following recommendation:

"Bearing in mind:

The need for supplies of newsprint and other types of paper made from long-fibre pulp;

The possibility of using mixed short-fibre tropical hardwoods and bagasse, both of which are available in the region;

The technological research carried out by technical institutes in Mexico and Brazil:

Recommends that the Pulp and Paper Advisory Group should:

1. Use its best endeavours, over the short term, to see that the region's unexploited conifer resources are utilized;

2. Compile data on the use of short-fibre pulp for the production of newsprint and other types of paper currently manufactured from long-fibre pulp, and submit to the next conference a technical and economic study of this possibility. This would obviate the installation in the immediate future of inefficient plants in the region with the sole aim of import substitution."

158. The representative of Venezuela made the following recommendation:

"Bearing in mind:

That a sufficient supply of long-fibre raw materials is of vital importance for the development of Latin America's pulp and paper industry;

That in some tropical countries of the region, plantations of certain types of conifers could contribute, on a satisfactory technical and economic basis, to the local supply of long-fibre pulp;

That the forestry, technical and economic aspects of such sources of long-fibre pulp for the pulp and paper industry have not been sufficiently studied or discussed;

Decides:

1. To welcome FAO's decision to include in its next symposium the subject of planned reforestation, and the fact that the item will cover reforestation of tropical conifers;

2. To invite the Advisory Group to carry out studies on the technical and economic aspects of tropical conifers as a source of long-fibre pulp for Latin America's pulp and paper industry."

159. The observer from ALALC recommended that the various pulp and paper studies in the region should be co-ordinated so as to avoid duplication of effort.

160. The meeting requested the Executive Secretary of ECLA and the Director-General of FAO to take the above recommendations into consideration, to the extent permitted by the resources and time available, in drafting the work programme of the Pulp and Paper Advisory Group for Latin America, and in drawing up the agenda for the next regional pulp and paper conference.

APPENDIX I

LIST OF PARTICIPANTS

1. Delegations and observers from States Members of the Commission

ARGENTINA

Representatives

José Brustia, Engineer, Industrial Bank

José Lorenzo Vietti, Adviser, National Development Council

Observers

Orlando J. Losada, Asociación Técnica de la Industria del Papel y la Celulosa de la Argentina (ATIPCA)

Antonio Mosca, ATIPCA

Jorge Raúl Pertierra, Asociación de Fabricantes de Papel

Carlos Alberto Prats, Unión Industrial Argentina y Asociación de Fabricantes de Papel

BRAZIL

Representative

Lineo Emilio Klüppel, Chief, Division of Sectoral Studies, Department of Economic Affairs, National Economic Development Bank (BNDE)

Observers

Marcos Telles Almeida Santos, Economic adviser, Federação das Industrias de São Paulo (FIESP)

Pericles Locchi, Química Industrial Brasileira (Quimbrasil)

Gerhard Valentin, Managing Director, Cia. Federal de Fundição

CANADA

Representatives

R. E. Gravel, Commercial Counsellor, Canadian Embassy, Santiago

William E. Haviland, Economist, Canadian Pulp and Paper Association

CHILE

Representatives

Luis Velasco del Campo, Deputy Project Manager, Development Corporation (CORFO)

Jorge Catepillán, Pulp and paper engineer, CORFO

Observers

Fernando Léniz Cerda, President, Corporación Chilena de Maderas (CORMA)

Luis Hunt, CORMA

E. Susaeta, CORMA

D. Urzúa, CORMA

L. Cárcamo, CADE Ingenieros

Hans Plass, CADE Ingenieros

H. Bunaschira, Instituto de Ingenieros Mecánicos de Chile
Ernesto Alvear Retamal, Compañía Manufacturera de Papeles y Cartones (CMPC)

Arturo Besa, CMPC

Manuel Carrasco, CMPC

Carlos Jorquera, CMPC

Jaime Jory, CMPC
 Jorge Lazo Cisternas, CMPC
 Gonzalo Pérez Campos, CMPC
 Jorge Ramos, CMPC
 Fernando Rodríguez, CMPC
 Guillermo Strodthoff, CMPC
 Pablo Urzúa, CMPC
 D. Iglesias, Deputy Manager, Industrias Forestales S.A.
 Luis Marty, Executive Director, Industrias Forestales, S.A.
 Carlos Lea, Forestal Bellavista S.A.
 Jorge Passi, Forestal Bellavista S.A.
 M. Ortiz, Forestry Engineer, Escuela Ingeniería Forestal
 Eduardo Zañartu, Forestry Engineer, Maderas Prensadas Cholguán
 Camilio Prieto, Private enterprise

COLOMBIA

Representative

Arturo E. Tangarife, Expert on industry, Foreign Trade Department

Observers

Jaime Arbitman, Cartón Colombia
 Jesús Alberto Guevara, Cartón Colombia
 Alberto Matallana, Vice-President, PROPAL
 E. Bloch, Director, Technical Department, Carvajal y Cía.
 Pablo Carbonari, Manager, Fábrica Nacional de Cartón Ltda.
 Hernán Buitrago, Multiprint Pereira
 Oscar Vélez Marulanda, Papeles Nacionales de Pereira
 Homer Saint Clair, Papeles Nacionales de Pereira

CUBA

Representative

Miguel A. Figueras, Economic Affairs Officer, Office of the Vice-Minister for Economic Development, Central Planning Board

DOMINICAN REPUBLIC

Representative

Luis O. Haza del Castillo, Chief of Administration, Industria Nacional del Papel C.A., Industrial Development Corporation

ECUADOR

Representative

Edwin Marchan, Commercial Counsellor, Ecuadorian Embassy, Santiago

FRANCE

Representative

Jean Pelletier, French Embassy, Santiago

Observer

Marc de Montalembert, Coopération Technique

GUATEMALA

Representative

Roberto López Pérez, National Planning Council

Observer

Osberto Cuéllar, Guatemalan Embassy, Santiago

HONDURAS

Representatives

Gustavo Fu Peñalba, Comité Técnica Pulpa y Papel
 Roger Marín, Central Bank of Honduras

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Santos Amaro Domínguez, Ministry of Industry and Trade
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 Gustavo Rosales Mateos, Nacional Financiera S.A.
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NETHERLANDS

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J. Sedney, Director, Industrial Development Institute, Paramaribo (Surinam)

PARAGUAY

Observer

Félix F. Trujillo Mora, Technical Adviser, Ministry of Industry and Trade

PERU

Representative

Victor Merino Ugarte, Deputy Director of Industrial Studies, Ministry of Development and Public Works

Observers

Alejandro de la Fuente, Chief, Technical Department, National Institute of Industrial Promotion
 Luis A. Romero, National Institute of Industrial Promotion

TRINIDAD AND TOBAGO

Representative

George M. Richards, Board of Industrial Development Corporation

UNITED KINGDOM OF GREAT BRITAIN
AND NORTHERN IRELAND*Observer*

B. S. Tennant, Ministry of Overseas Development

UNITED STATES OF AMERICA

Observers

Robert E. Simpson, United States Department of Commerce
 James J. Ritchie, American Paper Institute
 Rolf B. Beck, Crown — Zellerbach Inc.
 Foster P. Doane, Technical Association of the Pulp and Paper Industry (TAPPI)
 A. G. Wakeman, Pulp and Paper Survey (AID)
 Peter Warren, Development Resources Co.

VENEZUELA

Representatives

Roberto Alamo, Chief, Planning Division, Corporación Venezolana de Guayana

Constantino Quero Morales, Economic Adviser, Fedecámaras
Pedro Maal, Corporación Venezolana de Guayana

2. Observers from other countries

AUSTRIA

Dr. Walter Brunner, Commercial Attaché, Austrian Embassy, Santiago

FEDERAL REPUBLIC OF GERMANY

Dr. H. Fischer-Zach, Papier und Zellstoffindustrie

POLAND

Damian Silski, Commercial Counsellor, Polish Embassy, Santiago

Marian Dabrowski, Secretary, Polish Embassy, Santiago

URUGUAY

Manuel Diena, President, Asociación de Fabricantes de Papel

YUGOSLAVIA

Romano Morić, Ambassador, Yugoslav Embassy, Santiago

*3. International organizations**Central American Bank for Economic Integration (BCIE)*

Luis Maradiaga Reyes, Economist

Inter-American Development Bank (IDB)

Stig Palmgren, Chief, Industrial Section

Eduardo Figueroa, Special adviser

John Delaplaine, Consultant, Office of the Adviser on Programming

International Bank for Reconstruction and Development (IBRD) and International Finance Corporation (IFC)

Hans Fuchs, Assistant Director, Department of Investment in Latin America, Europe and Australasia

Bertil Walstedt, Economic Department

Latin-American Free-Trade Association (ALALC)

Guillermo Anguita

Digno Martínez López, Industrial programmer

Marco Aurelio Solís M.

Gonzalo Valenzuela Bousquet, Technical engineer, Executive Secretariat

Latin American Institute for Economic and Social Planning (ILPES)

Retórico Fretes, Economist

Organization of American States (OAS)

Jorge Beruff, Senior Specialist, Department of Economic Affairs, Industrial Unit

Permanent Secretariat of the General Treaty on Central American Economic Integration (SIECA)

Guillermo Noriega Morales, Chief, Integrated Industrial Development Section

4. Observer specially invited by the Secretariat

Harold Lungershausen, Atlantic Community Development Group for Latin America (ADELA) — Peru

5. Representatives of ECLA and FAO

ECLA

José Antonio Mayobre, Executive Secretary

Marco Pollner, Assistant Director, ECLA/INST./IDB Joint Programme for the Integration of Industrial Development

FAO

Hernán Santa Cruz, Assistant Director-General for Latin American Affairs

Jack C. Westoby, Assistant Director, Division of Forestry and Forest Products, Rome

Philippe Cochin, Assistant Regional Representative

Hubertus Reichardt, Regional Forestry Officer

Secretariat

Seppo Raisanen, Chief, Pulp and Paper Advisory Group for Latin America

E. Garnum, Chief, Pulp and Paper Section, Rome

Sergio Salcedo, Regional Adviser on Pulp and Paper (BTAO)

Eric Van den Ent, Pulp and Paper Advisory Group for Latin America

Hans-Peter Steinhagen, Pulp and Paper Advisory Group for Latin America

APPENDIX II

AGENDA

1. Opening meeting
2. Election of officers
3. Adoption of the agenda

Item

- I. Prospects of the pulp and paper industry in Latin America
 - A. Past development
 - B. Future trends
 - II. Economics of pulp and paper manufacture under prevailing Latin American conditions
 - III. Questions relating to small-scale industry
 - IV. Statistical classification as regards pulp and paper
 - V. Pulp and paper research in Latin America
 - VI. Technical training requirements for the pulp and paper industry in Latin America
 - VII. The financing of the development of Latin America's pulp and paper industry by national institutions
 - VIII. Packaging and industrialization in Latin America
 - IX. The dissolving pulp industry in Latin America
 - X. Chip groundwood and its possible application to newsprint manufacture in Latin America
 - XI. Recommendations
4. Adoption of the final report

APPENDIX III

LIST OF DOCUMENTS

I. Existing situation of the industry and future prospects

1. *El papel y la celulosa en América Latina: Situación actual y tendencias futuras de su demanda, producción e intercambio* (Spanish only)
Prepared by the ECLA/FAO/BTAO Pulp and Paper Advisory Group for Latin America
ECLA/BTAO/FAO PREP CONS/PAPER I/1
E/CN.12/570/Rev.3
FAO/ETAP/1346/Rev.3
TAO/LAT/30/Rev.3
ST/ECLA/Conf.23/L.32
2. "La industria de la celulosa y el papel", capítulo IV de *Los principales sectores de la industria latinoamericana: problemas y perspectivas* (Spanish only)
Prepared by the Advisory Group
ECLA/BTAO/FAO PREP CONS/PAPER I/2
E/CN.12/718/Rev.1
ST/ECLA/Conf.23/L.3
3. *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 I/3
ST/ECLA/Conf.23/L.40

II. Problems of scale and modernization in the industry

1. *Economics of pulp and paper manufacture under average Latin American conditions*
Prepared by the Advisory Group
ECLA/BTAO/FAO PREP CONS/PAPER II/1
2. *Aspectos económicos y condiciones de operación de pequeñas plantas de celulosa y papel elegidas en Argentina y Brasil* (Spanish only)
Prepared by P. Vicien (Instituto Nacional de Tecnología Industrial, Buenos Aires, Argentina) and G. Krogh (Agro-Técnica Tusani S.A., São Paulo, Brazil), consultants
ECLA/BTAO/FAO PREP CONS/PAPER II/2

3. *Aspectos económicos de la modernización y expansión de pequeñas plantas de celulosa y papel, con especial énfasis en los casos de Argentina y Brasil* (Spanish only)
Prepared by P. Vicien and G. Grogh, consultants
ECLA/BTAO/FAO PREP CONS/PAPER II/3

III. Research, training and finance

1. *Research on pulp and paper in Latin America*
Prepared by the Advisory Group
ECLA/BTAO/FAO PREP CONS/PAPER III/1
ST/ECLA/Conf.23/L.6
FAO/EPTA/2114
2. *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/2
3. *Financing of the development of Latin America's pulp and paper industry by national institutions* (English only)
Prepared by the Advisory Group
ECLA/BTAO/FAO PREP CONS/PAPER III/3
4. *Statistical classifications in the field of pulp and paper*
Prepared by the Pulp and Paper Section, Forestry Industries, Sub-Division, Division of Forestry and Forest Products, FAO, Rome
ECLA/BTAO/FAO PREP CONS/PAPER III/4

IV. Specific production fields in the pulp and paper industry

1. *Situación actual de la industria de la celulosa soluble en América Latina y sus perspectivas futuras* (Spanish only)
Prepared by the Advisory Group
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