UNITED NATIONS

ECONOMIC
AND
SOCIAL COUNCIL

PROVISIONAL
E/CN.12/AC.31/SR.4
8 September 1955
ORIGINAL: ENGLISH

ECONOMIC COMMISSION FOR LATIN AMERICA
Sixth Session
Bogota, Colombia

C O M M I T T E E V (Problems of Energy and Industrial Development)

PROVISIONAL SUMMARY RECORD OF THE FOURTH MEETING

Held at Bogotá, on Thursday
8 September 1955 at 10.35 a. m.

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/ PRESENT:

PRESENT:

Chairman:	Mr. BELLO	Mexico
Rapporteur:	Mr. BAKULA PATIÑO	Peru
Members:	Mr. ROMANUTTI	Argentina
	Mr. MAZZA	
	Mr. FERREIRA	Brazil
	Mr. UMAÑA DE BRIGARD	Colombia
	Mr. CESPEDES	Cuba
	Mr. VILDOSOLA	Chile
	Mr. PITARQUE	Ecuador
	Mr. BURROWS	United States of America
	Mr. BRONGNIART	France
	Mr. MALET	
	Mr. BELLO	Mexico
	Mr. ZAMORA	
	Mr. BOJORGE	Nicaragua
	Mr. NEWTON	Netherlands
	Mr. WRIGHT	United Kingdom
	Mr. SOUTO	Uruguay
	Mr. ALAMO BLANCO	Venezuela

/ Also present:

Also Present:

Representative of specialized agencies:

Mr. LARSEN	International Bank for Reconstruction and Development
Mr. ROYER	General Agreement on Tariffs and Trade

Secretariat:

Mr. DORFMAN	(Secretaries of
Mr. LEUSCHNER	(the Committee
Mr. VUSKOVIC	Assistant Secretary

/ Problems of

Problems of energy

Mr. PITARQUE (Ecuador) said that his delegation hoped within the next few weeks to be able to submit its observations on the ECLA Energy Report, an excellent piece of work which should be continued and kept up to date. The report would be of immediate use in Ecuador for the reassessment of the five-year preliminary electrification plan to be put in hand in 1956 and calculated to step up generating capacity by 155 per cent. The plan formed part of a larger economic development scheme for which the National Economic Planning and Coordination Board recently set up would shortly be carrying out electricity and industrial censuses. Most electricity plants in Ecuador were small-scale municipally-owned plants. The municipalities tended to regard them as merely fulfilling a social end, and tariffs were below production costs. As a result, the undertakings could not accumulate funds for essential expansion operations, and were unable to meet the growing demand for electric power.

In view of the importance of energy supplies in economic development, and of the capital required, it would be most useful for countries with a scarcity of expert technical personnel if they could have their national plans vetted from time to time by ECLA. The research which those countries would be obliged to undertake beforehand would incidentally help to overcome ECLA's difficulties in regard to statistical data, and give ECLA a better overall picture of the problem of energy in Latin America.

/ The outcome

The outcome, in addition to improving the comparability of figures for the various countries, might well lead to projects for complementary utilization of resources within the region or joint exploitation of hydropower resources by adjacent countries.

Mr. ROMANUTTI (Argentina) said that his delegation would like to complete the picture of the energy development programme in Argentina, and he would ask his colleague Mr. Mazza to do so. With regard to atomic energy, he had not come prepared to give a full account of the stage of progress reached, but he explained that an Institute of Atomic Research had been in operation for five years. Its main task so far had been the search for radioactive materials and the study of possible uses of atomic energy in Argentina for agricultural, medical and similar purposes. Argentina had also signed the agreement on atomic energy sponsored by President Eisenhower. He had unfortunately no data at hand concerning the achievements of the Institute.

Mr. MAZZA (Argentina) described the way in which the direction and execution of Argentina's energy policy were organized through the National Energy Council and the power plants.

The Council, working through the Delegaciones del Interior and the Instituto de economía del transporte energetico, was responsible for long-term and annual planning, rationalization, technical advisory services, cooperative and legal matters,

/ and the

and the administration of funds. The Delegaciones did useful work in providing loans and equipment to provincial areas, and in carrying out rural electrification studies and schemes. The Instituto, which was responsible for the transport of all forms of energy - oil, coal, gas and electricity - was particularly important because of the vast distances between the sources of supply in Argentina and the main consumption centres.

Rationalization played a predominant role in the work of the Council, and took a variety of forms, including the study of the most economical use of each type of fuel, the change-over from electricity to cheaper fuels, especially gas, for certain domestic uses; price and tariff-fixing; timing of programmes; assessment of import requirements; study of possible shortage of energy revealed by statistics; and establishment of a fuel code.

Reviewing the characteristics of Argentina's sources of energy, he emphasized the wealth of solid fuel resources in the South, estimated as sufficient to supply the country's needs for a century to come, and the importance of water-power resources in the cordillera of Upper Argentina. The majority of the large number of water-power projects in that area were essentially concerned with irrigation, but whenever possible, development schemes were so designed that the power could be used for generating electricity without interfering with the use of the water for irrigation purposes. Thermal

plants operating on a relatively small scale, most of them private undertakings in the neighborhood of Buenos Aires, were receiving the attention and assistance of the Government, as were also the important questions of transmission lines and interconnexions.

In conclusion, he quoted figures to show that the plans for hydro-electric production and installed capacity were proceeding satisfactorily.

Mr. DORFMAN (Secretariat) said that ECLA hoped to continue the studies which were evidently so greatly appreciated by all delegations.

In the course of the debate, a series of specific points had been raised, and he would like to deal briefly with each of them in turn.

The question of a uniform terminology raised by the Venezuelan representative was a matter of great importance, and ECLA would certainly do all it could to bring about uniformity. But the problem was complex, as was admitted in Technical Appendix III to document E/CN.12/384/Add.1. Even the apparently simple matter of a uniform unit of energy was complicated by the heterogeneous nature of the various sources of energy. The French representative had put in a plea for the general use of the kilowatt-hour as the common unit. But there were serious objections to its adoption, and perhaps the least objectionable term, applicable to both net and gross energy, was "ton of petroleum equivalent", the unit

provisionally adopted in the Report. He suggested that the question might be more fully discussed in sub-committee.

The second point he had singled out during the debates was the desirability for greater reliability in the statistics of consumption and production. He urged delegations to send in revised figures wherever possible. Accurate and complete statistics were of vital importance for establishing a balance-sheet of energy and achieving a uniform basis for study and calculation. A query had been raised concerning the "global coefficients" given in the Report. Admittedly they must be taken with some reservation. But frequently consumption by sectors was not available; and the Secretariat had done its best to correct the coefficients in various ways.

He fully agreed on the need to draw up inventories of energy resources, especially, of hydro-power potential, and in that connexion to improve statistics, studies and estimates. It had, however, been made clear in the report that all such estimates were very incomplete and offered as a matter of interest in order to provoke deeper study.

Another important point which had been brought out was the immense possibilities which lay in the utilization of river flow, the case of the River Paraguay being a good example of the way in which flow could be regulated and employed for a variety of purposes, including power production.

The figures in tables 10 and 11, too, were admittedly only tentative and included as a guide and incentive to obtaining more accurate data.

Appendix II in the second part of the report contained a series of tables reflecting the existing state of knowledge of the energy resources of each country. There again, the Secretariat was only too conscious of their shortcomings and would welcome further data, based not on general estimates but on accurate measurement.

The central problem was how to develop each resource to the optium level and at the minimum cost so that it fitted neatly into the appropriate energy pattern for each country. At least two delegations, those of the United States and France, had drawn attention in that connexion to the potentialities of non-traditional forms of energy. Incidentally the subject had been dealt with fairly briefly in Chapter III of the second part of the report and the Secretariat would welcome further information to improve the chapter and open the eyes of the Latin American public to the possibilities in that direction. Geo-thermal energy, for intance, was already being harnessed in Chile and Mexico and could be employed elsewhere. Utilization of such forms of energy should be part and parcel of the general scheme.

In that connexion he would point out that the note of "cautious enthusiasm" introduced by the representatives of Venezuela, Cuba and the United Kingdom with regard to the possibilities of nuclear energy was in substantial agreement with the views expressed in the last paragraph of Chapter V in the second part of the report.

/ In drawing

In drawing up nuclear power plans, attention must be paid both to the foreign currency outlay involved and to the possibility of using nuclear energy for other purposes than power production, e.g. manufacture of isotopes.

When all was said, however, the fact remained that the discovery of nuclear energy had increased the world's energy resources twenty-fold.

The replacement of traditional sources, as had been pointed out, would be neither absolute nor rapid. Indeed, petroleum was steadily growing in importance, not only as a fuel but as a raw material for the chemical industry.

Clearly, therefore, it was of the utmost importance to keep abreast of advances in nuclear energy and to build up a body of qualified technicians for the day when nuclear power production would become a practical possibility in Latin America. That, obviously did not precludethe appraisal and development of traditional hydraulic and thermal sources of energy. On the contrary they deserved the utmost attention.

Low yields were also a serious problem on which the Committee had had the experience of the various countries. Losses, which naturally differed according to the form of energy, were studied in some detail in Appendix V of the Report. Incidentally, petroleum product losses, referred to by the Venezuelan representative, were allowed for in Table 8 in the second part of the Report. To meet the problem of losses solutions must be fitted to the circumstances of the case.

/ The important

The important question of forecasting future demand in order to cater adequately for it would be discussed in sub-committee.

The CHAIRMAN said that Mr. Dorfman's statement had shown how careful the Secretariat had been in the choice of bases and data for the Report.

Mr. LARSEN (International Bank for Reconstruction and Development) said that the appreciation of the potentialities of nuclear energy which he had just heard coincided with the view of the Bank's technicians. The Bank, aware of the need to prepare for the time when nuclear power production would become a practical possibility, had recently appointed a full-time adviser on nuclear energy who would follow developments closely and report to countries at the appropriate time.

Mr. FERREIRA (Brazil) referred to the Secretariat studies on the siderurgical industry and the transformation of iron and steel. He said that he wished to submit some data additional to those contained in the excellent preliminary report and which would change the picture as regards some fields of Brazilian industry.

Prospective production of steel during the period 1957-60 would be much higher than the figure of 1,712,000 tons per year quoted in Table VI.

The Monlevade plant would increase its production by an additional 160,000 tons per year. Volta Redonda, which in

/ 1953 had

1953 had produced 482,000 tons, would reach 750,000 tons in 1955 and should attain at least 1 million tons of steel per year by 1959. Acesita (Minas Geraes) expected to have an additional output of 85,000 tons of special steels over and above 1953 figure of 43,000 tons.

Plans existed for the construction of integrated steel plants at Santa Catarina and Santos, which by 1960 would add 450,000 tons per year to Brazilian capacity.

Thus, steel ingot production in Brazil should amount to 2.5 million tons a year by 1960 or 40 kg. per head, representing a doubling of capacity in 5 years.

By then, however, the internal demand, according to a recent survey, would be much higher. The increase in the demand for tin-plate was a good illustration of the steady expansion. The Volta Redonda plant was designed in 1942 to cater for a possible demand of 40,000 tons a year. By 1953, however, demand had reached 104,000 tons, 64,000 of which had to be imported.

A new electrolytic tin-plate line entering into operation at Volta Redonda in September 1955, would add a further 100,000 tons capacity, and by 1959 capacity would reach 180,000 tons, an increase of almost five times in as many years.

Steel-structure-producing capacity, since the recent addition of a capacity of 1,000 tons per month at Volta Redonda was considerably higher than in 1953, and would replace about 80 per cent of the imports as they were in 1953.

/ Heavy hydraulic

Heavy hydraulic presses for large forgings were to be installed in two Brazilian steel plants, while Volta Redonda was already equipped to produce iron and steel castings of over 40 tons, or even 100 tons with a small additional investment.

A proposal was already on foot to establish a company for machining heavy pieces. Brazil would then be in a position to produce machinery, rolling mills, and large forged rolls. There were already two plants in Brazil producing diesel-electric and diesel engines.

Mr. UMAÑA DE BRIGARD (Colombia) said that the low level of development of the metallurgical and engineering industries in Colombia, which, largely consisted of small-scale and handicraft establishments, was due to the large capital outlay required, the scant development of complementary activities, lack of cheap power, shortage of qualified technicians, raw material supply difficulties, marketing problems and the lack of adequate protection. Logically enough, therefore, the first industries in that field were those manufacturing finished goods for immediate consumption, mostly from imported materials, and taking advantage of cheaper, but at times inefficient, man-power.

With time, however, the need had become apparent to exploit domestic raw materials and intermediate products and obtain a certain independence of international events. To that end, steps had been taken to foster the production of

/ raw cotton,

raw cotton, caustic soda and, above all, iron and steel. The Colombian Government had been at pains to formulate a clear-cut policy for basic industries, the major effort in that field having been the establishment of an iron and steel industry with the support of the whole country.

The preliminary report, which departed somewhat from the traditional lines of such studies, indicated the metallurgical and engineering industries as one of the most suitable sectors for import substitution. However, if those two branches were to attain full development, the Paz del Rio Plant must not only reach full productive capacity but be expanded as rapidly as possible.

The Executive Secretary had declared that expansion of the plant could be regarded as uneconomic only if capital thus absorbed could not be more profitably employed in more productive activities providing substitutes for imports. Colombia seemed, however largely to have exhausted the possibility of substitution in the case of articles of easy manufacture for direct consumption and had reached a high level of substitution of agricultural imports. Even in those fields in which substitution could be carried further, e.g. chemical and pharmaceutical products, the process would have to be very slow because of the large number of different raw materials involved. The metallurgical and engineering industries, on the other hand, had the advantage of using a single, relatively uniform raw material and producing, in addition to finished

/ consummer goods,

consummer goods, a large number of intermediate products useful to other industries. Hence the expansion of the Paz del Rio plant's capacity to 375,000 tons per year, or three times the present figure, enabling it to offer the full range of flat products, supplement its present range of commercial products and lower its production costs accordingly, appeared not only justified but imperative.

The next step would be for the industrialists concerned, with the help of semi-official industrial development bodies and Government measures, to create the necessary confidence and attract the necessary capital in good time. Steps must also be taken to develop the absorption capacity of transformation industries in anticipation of the Paz del Rio expansion by applying existing Government measures and including under them industries not at present catered for by Paz del Rio products or not taking the full 80 per cent of their basic materials from Paz del Rio.

Some revision of Customs tariffs would also be necessary after careful study and analysis of its incidence on other activities. The next step would be to decide to what extent indirect burdens should be placed on other sectors now importing iron and steel products under special conditions. As the preliminary report showed, some metallurgical and engineering products were adequately protected, whereas the tariffs on others were very low by comparison with those in other countries at a corresponding stage of development.

/ Finally, special

Finally, special credit arrangements would have to be dvised to produce so large an amount of capital in the required time. The effort demanded of the country would be great but almost inevitable.

Productivity in existing metallurgical and engineering industry was in general low, though bearing comparison with that of larger and better organized plants in other Latin American countries. The main reasons for the low level were the small volume and variety of output, inefficient use of teams, and lack of properly qualified staff from the lowest to the highest level.

Standardization of products, the framing of quality standards and specifications, and production studies to improve machine utilization would greatly help to raise productivity.

Despite the adaptability of Colombian manpower, the staff problem would call for close co-operation between industrialists and Government circles. The attempt made in the Report to estimate the size of the staff required for the development of the industry and the help given by the Senai were much appreciated. Whereas the Colombian industries concerned required 900 new skilled workers a year, only about 300 were leaving school each year and of them only 100 could be regarded as properly qualified. A training programme sponsored by industrialists and the Government was therefore an essential part of the programme of development of the engineering and metallurgical industries.

/ After summing

After summing up the conclusions of his review, he submitted the following recommendations:

1. That steps be taken to ensure the expansion of the Paz del Rio plant in the shortest possible time.
2. That industrialists, the iron and steel industry and the Government study measures to establish and protect the new industries in the sector required to ensure full use of Paz del Rio output and further the substitution of imports.
3. That the same bodies prepare a programme of action to deal with the problem of training qualified staff.
4. That studies be completed on the standardization of the products and formulation of quality standards and specifications, etc. with a view to raising productivity.
5. That existing mining legislation be revised to facilitate the prospecting and working of new essential natural resources.

Mr. MALET (France) said that, although the multiplicity of factors involved made it difficult to draw conclusions valid for specific cases from a general study, the preliminary report would undoubtedly greatly facilitate the elaboration projects. His delegation welcomed the holding of a further meeting of the Committee of Experts in 1956.

Investment costs for new plant were very high, partly because the allowance for depreciation must be much heavier than in the case of old, and often completely amortized

/installations. Owing

installations. Owing to heavy overhead charges, iron and steel works were very sensitive to the pace of production.

The delivery prices of raw materials, which were the major factor in the cost of iron and steel products, depended on a variety of factors. The quality of the materials was also important. Productivity too, varied according to the range of products turned out. Hence, cost estimation was a very complex subject.

The setting-up of new works in Latin America raised special raw material problems and the productive capacity of traditional equipment was often in excess of requirements.

Reference to a few French achievements might be of some interest.

The French iron and steel Research Institute was actively collaborating in research at Liége into pig-iron production in low-shaft furnaces in order to make use of poor coking coal.

Wider use was being made of oxygen in the Thomas steel-refining process as a means of producing higher quality steel and of using a wider range of pig-iron and a larger proportion of scrap per ton produced.

Several continuous-casting plants were in operation in France, one recent one having a capacity of 200,000 tons per year. The low investment cost of the process made it an attractive method of producing semis in medium size plants. Again, the use of "planetary mills" for continuous-strip sheet production was a revolutionary process whose potentialities must not be under-estimated when a modest output was envisaged.

/ Thus, technical

Thus, technical developments appeared likely to provide suitable solutions for the special conditions in Latin America.

In connexion with the interesting work performed by the Commission's Secretariat on estimating future market requirements as a whole and by products, he would suggest comparing the methods used with those of the Economic Commission for Europe and the European Coal and Steel Community. From experience in France he knew that the task was no easy one. In view of its importance, however, he suggested conducting such studies country by country in the light of local industry development programmes. Transformation industries turning out durable consummer goods tended to use a steadily increasing proportion of flat products, while civil engineering works absorbed large quantities of bars and angles, whose consumption would therefore probably be high for years to come in Latin America.

As rightly pointed out by Mr. LEUSCHNER, in the case of transformation industries, productivity depended relatively little on the size of undertakings and there was every reason to think that small-scale concerns could easily be developed in Latin America, especially as it should be possible to finance them with domestic or foreign private capital. On the other hand, highly-mechanized mass-production industries required heavy investment and domestic and export outlets must be such as to permit the achievement of near-maximum output within a short time if such plant was to pay its way.

/ The protection

The protection against foreign competition automatically afforded to products of low commercial value by high transport costs did not apply in the case of large-scale transformation industries with no assured outlet.

The problem of standardization of products, aptly raised by the Argentine representative, was a difficult one, particularly in highly industrialized countries. The less-developed ones would do well to set up bureaus of standarization to encourage the manufacture of products to as standard specifications as possible and the Commission could make a useful contribution in this connexion.

France would gladly collaborate in solving the various problems, many of which arose in somewhat different form in the industrialized countries.

On the proposal of the Venezuelan representative,

it was agreed to deal with the remaining subjects as a whole and not sector by sector.

The meeting rose at 12:50 p.m.