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Economic Commission for Latin America



REPORT OF THE MEETING ON HORIZONTAL CO-OPERATION FOR THE
DEVELOPMENT OF THE MINERAL RESOURCES OF
LATIN AMERICA *

(Bogotá, Colombia, 14-18 June 1982)

* Organized by the Economic Commission for Latin America (CEPAL) and the Colombian Mining Corporation (ECOMINAS).

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I. ORGANIZATION OF WORK

1. CEPAL, in its resolution 379 (XVII) of 1977, agreed to intensify the work being done in the field of natural resources by means of, *inter alia*, prospective studies of regional and subregional interest, collaboration in national studies and promotion of reciprocal co-operation among the countries of the region.
2. Later, in its resolutions 384 (XVIII), 386 (XVIII) and 388 (XVIII) of 1979, CEPAL ratified and expanded the previous agreements establishing the need to improve information and consultation procedures in order to heighten the industrialization capacity of the developing countries and improve their bargaining ability and their access to the international market.
3. In order to comply with these resolutions, the CEPAL Secretariat formulated and carried out a project on horizontal co-operation for the development of the mineral resources of Latin America, with the financial assistance of the Government of the Netherlands. To this end, basic studies were prepared by the Secretariat and the countries of the region, and a meeting was convened in Bogotá with the co-operation of the Government of Colombia through the Colombian Mining Corporation (ECOMINAS).

1. Place and date

4. The first Meeting on Horizontal Co-operation for the Development of the Mineral Resources of Latin America was held in Bogotá, Colombia, from 14 to 18 June 1982.

2. Attendance 1/

5. Delegations from the following member countries of CEPAL were represented at the Meeting: Argentina, Bolivia, Brazil, Colombia, Costa Rica, Chile, Ecuador, Guatemala, Guyana, Honduras, Jamaica, Mexico, Panama and Peru.
6. From the United Nations Secretariat, a representative attended from the United Nations Development Programme (UNDP).
7. The Meeting was also attended by a representative from the Organization of American States (OAS).
8. Observers from the following countries were also present at the Meeting: Brazil, Colombia, Ecuador, Italy and Spain.

3. Agenda 2/

9. The Meeting adopted the following agenda:
 1. Election of Officers
 2. Adoption of the provisional agenda
 3. Presentations on the mining and metallurgical sector in Latin America:
 - (a) General consideration of the proposal for horizontal co-operation projects in Latin America;
 - (b) Evolution and prospects of the mining sector in Latin America;
 - (c) Supply and demand of seven basic metals of Latin America;

1/ See the list of participants in annex 1.

2/ See the list of documents in annex 2.

- (d) General and specific guidelines for the development of the mining and metallurgical industry of Latin America;
 - (e) Economic co-operation between Brazil and the Andean Group: the case of non-ferrous metals
4. Presentations on country experiences in the development of the mining and metallurgical sector:
- (a) Mexico: The relationship between exploration activities and increases in mineral production in Mexico;
 - (b) Peru: Problems and experiences in the entrepreneurial organization of the public mining sector of Peru;
 - (c) Colombia: Ways and means of horizontal co-operation for the development of mineral resources in Latin America;
 - (d) Statement on the situation and evolution of the national mining sector of the other participating countries
5. Study and report of the working groups on possible horizontal co-operation projects in the area of mining and metallurgy
6. Analysis and determination of possible forms of co-ordination and means of implementation of horizontal co-operation projects
7. Conclusions and recommendations.

4. Opening meeting

10. At the opening session of the Meeting, the Vice-Minister of Mines and Energy of Colombia, Mr. Carlos Zambrano, was present. This session was addressed by the General Manager of ECOMINAS, Mr. Pedro Pablo Morcillo, and the Deputy Executive Secretary for Economic and Social Development of CEPAL, Mr. Norberto González.

11. The General Manager of ECOMINAS welcomed the representatives of the mining sector of the various Latin American countries, the special guests and the observers present at the Meeting. He also discussed the characteristics of Colombian mining, highlighting the role of ECOMINAS in its development. Finally, he stressed the importance of mutual co-operation among the countries of the region.

12. The Deputy Executive Secretary of CEPAL, after expressing gratitude for the hospitality of Colombia and its people, emphasized the role of mining in the context of the economic development of the region. He especially analysed the present situation of the mining sector and pointed out some areas of possible regional co-operation.

13. The Vice-Minister of Mines and Energy gave a presentation on the current situation and the prospects for development of the mining sector in Colombia. He discussed the most important projects in progress and to be developed in the country in the next few years. He emphasized the strong interest of the Government of Colombia in promoting horizontal co-operation for the development of the mining sector.

5. Election of Officers

14. At the first working session of the Meeting, the following Officers were elected:

<u>Honorary Chairman:</u>	Carlos Zambrano U. Vice-Minister of Mines and Energy (Colombia)
<u>Chairman:</u>	Pedro Pablo Morcillo (Colombia)

/First Vice-Chairman:

First Vice-Chairman: Guillermo Salas (Mexico)
Second Vice-Chairman: Godfrey Woodrowe Perkins (Jamaica)
Rapporteur: Oscar Valentín Reverberi (Argentina)

15. Two working groups were formed. The following Officers of Working Group No. 1 were elected:

Chairman: Iván Barretto de Carvalho (Brazil)
Rapporteur: Sigfredo Cornejo (Peru)

16. The Officers of Working Group No. 2 were elected as follows:

Chairman: Sergio Schindler (Chile)
Rapporteur: Guillermo Murguía (Bolivia)

6. Adoption of the report

17. At the final plenary session, the Rapporteur submitted a draft report to the Meeting. This draft was adopted with slight modifications.

II. SUMMARY OF THE DISCUSSIONS

18. The discussions began with the presentations on general and specific topics related to the mining and metallurgical sector. The Secretariat made presentations on the "Evolution of, and prospects for, the mining sector in Latin America" (E/CEPAL/SEM.3/R.4); "Posibilidades de cooperación y complementación industrial entre América Latina y el Japón para la producción y comercialización del hierro y el acero" (E/CEPAL/L.265); "Oferta de América Latina y demanda de los mayores mercados mundiales de los principales metales, 1970-1990: Aluminio, cobre, hierro, níquel, plomo, zinc, estaño" (E/CEPAL/L.269 and Corr.1); and "Cooperación económica entre el Brasil y el Grupo Andino: El caso de los minerales y metales no ferrosos" (E/CEPAL/SEM.3/R.8); an observer spoke on the topic "Proposición de líneas generales y específicas de acción para el desarrollo de la industria minero-metalúrgica de América Latina".

19. In this part of the Meeting, the following main topics were presented and examined: the characteristics of the evolution and possibilities for development of the mining and metallurgical sector of Latin America; the conditions in which the international market of these products is developing, and the serious recession in the world economy, whose characteristics are more structural than conjunctural. In relation to this latter aspect, the possibility was suggested that a process was being created which would lead to a third industrial revolution. No matter what the alternative evolution of the international market, there would be a need to form Latin American multinational corporations so that there could be a future integration of the mining and metallurgical activity with the subsequent industrial transformation. To co-ordinate these aspects there would presumably be a need to establish a forum or permanent organization which would bring up to date the ideas proposed at the Seminar on Mineral Development Financing and Co-operation in Latin America (Lima, Peru, 9-11 March 1981) on the creation of a Latin American Mining Institute; in this respect, the difficulties, especially financial, which prevented its establishment were recalled.

20. The second part of the discussions consisted of specific presentations on Latin American mining. The representative of Mexico spoke on the relationship between exploration activities and increases in mineral production in Mexico, the representative of Peru made a presentation on the problems and experiences in the

/entrepreneurial organization

entrepreneurial organization of the public mining sector of Peru, 1950-1981, and the representative of Colombia presented a paper on ways and means of horizontal co-operation for the development of the mineral resources of Latin America.

21. There was a general exchange of experiences in the areas of methodology, ways and means, legislation and institutional organization in respect of the prospection, exploration, production and marketing of minerals. The different processes of nationalization and privatization of mining enterprises during recent decades in the various countries of the region were also discussed; since experiences differ in regard to these processes, detailed analyses were made of the countries' achievements and the problems they have had to face in each case. It was decided that the document on ways and means of horizontal co-operation for the development of the mineral resources of Latin America presented by the representative of Colombia would be considered a working document for Working Group No. 1.

22. The representatives of the different countries then discussed national experiences and prospects in regard to the mining sector.

23. The representative of Argentina referred to the projects for mine prospection and exploration being carried out for the past fifteen years. The experience acquired could be transferred, at the level of bilateral co-operation, to the countries requesting it. In accordance with its new policy, the Government was implementing prospection, but mining development was the responsibility of the private sector. On the basis of current legislation on foreign investment and mining promotion, and the recent modifications in the Mining Code, some recently discovered deposits were undergoing a process of public bidding.

24. The representative of Bolivia pointed out the importance of the public sector since the nationalization of the large private corporations in 1952. He said that in July 1981 the Government had approved the policy guidelines previously agreed upon with the private sector which would define the development of mining during the current five-year period. Finally, he especially stressed that joint regional action should exist for the defense of prices and the marketing of minerals.

25. The representative of Brazil discussed the policy of expansion and diversification for the next decade, which included new legislative norms, an investment programme for the public sector and the stimulation of private activity. He spoke of Brazil's experience in the area of mining technology and services, as well as the possibilities for horizontal co-operation.

26. The representative of Costa Rica referred to the mine exploration studies being carried out in his country. Apparently the development of small-scale gold mining and the long-term exploitation of bauxitic laterites by medium- and large-scale mining would offer the most promising possibilities. He stressed his country's need for technical assistance in the current stage of its mining development.

27. The representative of Chile stated that in his country copper is exploited by small-, medium- and large-scale mining enterprises. In the mid-1970s the National Copper Corporation of Chile (CODELCO), an autonomous State enterprise, was established for the exploitation of large-scale copper mining. Medium- and small-scale mining are a mixture of private and State enterprises. He said that his country also has substantial amounts of molybdenum, lithium, iodine, coal, rhenium, iron and saltpeter resources, inter alia. Chile's mining policy is one of openness to private investment, both domestic and foreign. Finally, he pointed out that his country has very experienced mining research and development centres which apply modern technologies for the prospection, exploitation, refining and marketing of mineral resources.

28. The representative of Ecuador expressed the need to study the possibilities for reciprocal technical assistance in regard to the operation of medium-sized and small productive units for the exploitation of metallic and non-metallic minerals and the exchange of information on the technical assistance required to prepare geological maps.

29. The representative of Guatemala indicated that mining activities, which had been developed on a small, medium and large scale, had been at a standstill for two years, and that Guatemala had reserves of nickel, lead, copper, zinc and other minerals, both metallic and non-metallic. The sector is currently reorganizing its legal, institutional and technical training aspects, with the primary aim of developing small- and medium-scale mining. For these activities it was important for this bilateral aid meeting to take into account the different degrees of development and the location of the Central American countries within Latin America.

30. The representative of Honduras stated that in the colonial period his country had undergone an intensive development of the mining industry. In subsequent years, the strength and size of this activity had decreased, and the only mine currently in operation was "El Mochito", which accounted for 98% of national mining production. In order to reactivate mining production, the Government had adopted policy measures aimed at activating the sector on the short term; such measures included the preparation of a national mining inventory, tax reforms and the formulation of a national mining policy.

31. The representative of Panama stressed the need to offer adequate and timely assistance to the most needful countries of the region through horizontal co-operation.

32. The delegate from Jamaica requested that the Meeting should not restrict itself to the consideration of metallic minerals alone but should place equal importance on industrial minerals, since with some horizontal co-operation in this field diversification in mineral production might be achieved, to the considerable benefit of the countries of the region.

33. The representative of Guyana stressed the need for the region to co-operate in the development of small- and medium-scale mining operations and said that, in the context of horizontal co-operation, the Government of Guyana welcomed the opportunity to establish technical and economic co-operation mechanisms from member countries to participate in projects, especially those related to gold and kaolin development in his country.

III. CONCLUSIONS AND RECOMMENDATIONS

34. In order to identify the most important elements in the creation of a system to organize and promote horizontal co-operation for the development of the mineral resources of Latin America, the Meeting agreed: to establish an Advisory Committee and a Co-ordinating Secretariat to organize and promote such co-operation. This decision was based on a detailed analysis of the problematic situation of the sector and the background provided by the Seminar on Mineral Development Financing and Co-operation in Latin America (Lima, Peru, 9-11 March 1981), sponsored by the Inter-American Development Bank (IDB), at which the creation of a Latin American Mining Institute was proposed.

1. Advisory Committee

(a) Membership

All those public and private mining bodies of Latin America interested in participating would be members of the Advisory Committee. Each country would be represented by one single body, appointed by the respective government, which would also act as a national co-ordinator, receiving information from the Co-ordinating Secretariat and distributing it to the countries, and vice versa.

(b) Functions

- (i) To advise the Co-ordinating Secretariat in the fulfillment of its functions.
- (ii) To analyse partial reports on the progress of the work and to make decisions on them.

2. Co-ordinating Secretariat

(a) Functions

The functions of the Co-ordinating Secretariat would be the following:

- (i) To collaborate in the promotion and implementation of the regional, subregional and bilateral projects presented at the Meeting on Horizontal Co-operation for the Development of the Mineral Resources of Latin America.
- (ii) To prepare a draft proposal for the establishment of a system to co-ordinate and implement horizontal co-operation actions in the mining and metallurgical field in the region.
- (iii) To identify the existing and potential financial resources which might be included in the implementation of the horizontal co-operation projects.
- (iv) To stimulate the participation in the horizontal co-operation actions of new countries of the region and to include new projects.
- (v) To obtain and disseminate information which would aid in the accomplishment of the objectives and actions of horizontal co-operation in the mining of the region.

(b) Powers

The powers of the Co-ordinating Secretariat would be exercised until the next meeting on horizontal co-operation for the development of the mineral resources of Latin America.

35. The Meeting expressed its appreciation for the valuable collaboration of CEPAL in the organization and development of this event for horizontal co-operation for the development of the mineral resources of Latin America and requested its support and technical co-operation with the Advisory Committee and the Co-ordinating Secretariat for the fulfillment of their functions.

36. The Meeting thanked the Colombian Mining Corporation (ECOMINAS) for its collaboration with CEPAL in the holding of this event and requested that ECOMINAS, in collaboration with the various other Colombian mining institutions, should assume the functions of Co-ordinating Secretariat until the next meeting.

37. The Meeting asked the Peruvian Ministry of Energy and Mines to collaborate with the Co-ordinating Secretariat in the preparation of a draft proposal for the establishment of a system of horizontal co-operation for the development of the mineral resources of Latin America to be presented at the next meeting.

38. In order to provide a group of suggestive but not restrictive projects, the countries then presented their needs and offers, both subregional and bilateral, as follows.

39. CEPAL will communicate to the member countries of the Commission the agreements which have been made at this Meeting.

(a) Regional projects

- (i) It is recommended that each country should make an inventory of the studies in progress and the capacities of the geological mining and metallurgical research centres in accordance with a uniform framework to be developed by CEPAL on the basis of the experience of the countries which have such inventories. This same system will be used to present the requirements or requests for research which each country will submit.
- (ii) It is recommended that each country should make an inventory of the present and projected installed capacity of its principal mining machinery and equipment. At the same time, the government agency in charge of mining in each country will promote the identification of the supply of mining machinery and equipment.
- (iii) It is recommended that the government mining agencies should communicate to the transport agencies their general desire to minimize shipping costs.
- (iv) It is suggested that the Ministry of Mines and Energy of Colombia should carry out a systematization and dissemination of its experience in the exploration, exploitation and market studies of coal with an emphasis on substitution, so that the Latin American countries may analyse and take advantage of the possibilities for integration and/or closer co-operation.
- (v) It is suggested that the governments, in order to implement mining projects on a suitable scale, should promote the joint participation of private and/or public Latin American enterprises based on common interests. It is also suggested that in the implementation of the projects the technical, consultation and engineering services of the Latin American countries, preferably working together, should be used.
- (vi) It is suggested that the governments should support the setting up of a system of mining statistics and information, initially in the fields of mining and metallurgical production, foreign trade and consumption. They should also back the actions developed by CEPAL which are aimed at achieving the establishment of a homogeneous system of mining statistics and information throughout Latin America.
- (vii) It is recommended that the governments should support the offering of courses and/or annual seminars on the negotiation of contracts dealing with the exploration, exploitation and marketing of mining products with transnational corporations, with the objective of training and exchanging knowledge with technicians of the government agencies of the Latin American countries, promoted by CEPAL and/or other intergovernmental bodies.
- (viii) It is recommended that each government should inform CEPAL on the scholarships, training and capacitation courses available in the mining sector, so that this body may draw up a list of these opportunities with the aim of strengthening mainly those countries which are most in need of this support.
- (ix) It is recommended that the governments of the Andean countries should strengthen their ties of co-operation in the area of geological mining and metallurgical planning and development.

/(b) Bilateral

(b) Bilateral projects 3/

This category includes, on the one hand, the project proposals from countries which need Latin American horizontal co-operation for the development of their mining activity and, on the other, the offers made in project proposals by some countries, especially those with a long mining tradition, to satisfy the needs expressed by some countries of the region. These offers are voluntary and may be from government to government, government to enterprise or enterprise to enterprise, either public or private. The ways and means of putting the horizontal co-operation into practice will be decided by mutual agreement between the countries or organizations.

ARGENTINA

Needs:

1. Assistance in stages of analysis of infrastructure, pre-feasibility and feasibility studies in large projects.

Offers:

2. Geological mapping, stratigraphic and paleontological studies.
3. Experience in remote sensors, photointerpretation.
4. Studies of clay deposits and prospecting of phosphatic deposits.
5. Studies of ultrabasic rocks and their associated mineralization, petrology of igneous rocks (hydrothermal alteration).
6. Mineralogy, calcography, X-rays, etc.
7. Joint geological mining research in border regions with Bolivia and Chile.

BOLIVIA

Needs:

8. Technical assistance for a feasibility study and transfer of technology on the peninsula coal of the Copacabana region, from the highly specialized countries.
9. Joint regional geological studies in regions bordering on neighbouring countries of the region.
10. Technical assistance in geo-technology for the basin of the city of La Paz.
11. Technical assistance in the prospecting, exploiting, processing and concentrating of radioactive minerals.
12. Technical assistance in recommending activities which need to be carried out in order to develop programmes for mining expansion and development.
13. Technical assistance in the formulation of programmes for the elaboration of feasibility projects, and periodic supervision of their implementation.
14. Technical assistance in the selection of equipment and machinery for the different phases of exploitation.
15. Technical assistance in research projects on deposits of phosphoric rock.
16. Technical assistance in industrializing non-ferrous metallic products.

Offers:

17. Internationalization of the Austrian-Bolivian Mining School, which trains mining professionals at the middle technical level.
18. Technical assistance in the interpretation of remote sensor studies as applied to the study of natural resources.

3/ See table on page 14.

19. Technical assistance in the mining of veins of tin, antimony, lead, silver, and zinc in the geological mining and metallurgical field, according to a programme of work.
20. Technical assistance in concentration and beneficiation of tin, lead, silver and zinc under the auspices of the "Instituto de Investigación Minero-Metalúrgica" (IIMM).
21. Technical assistance in metallurgical processes and smelting of tin-antimony ore.

BRAZIL

Needs:

22. Small-scale mining technology.
23. Processing of complex minerals.
24. Extraction, concentration and metallurgy in large-scale copper projects.
25. Integration of regional technologies with Brazilian engineering.
26. Development of underground mining equipment.

Offers:

27. Project management: feasibility, basic and detailed engineering, programming, logistic, costs, construction, testing and putting into operation.
28. Personnel training with assistantships in Brazilian public agencies and public and private mining and metallurgical industries.
29. Exchange of experiences on the setting up of systems of statistical information and information on the economics of mining and metallurgical, a cadastre of mining and administration of mineral concessions with technical apprenticeships in the National Department of Mineral Production (DNPM), the Council of Non-Ferrous Metals, Iron and Steel (CONSIDER), and representative bodies of producers.
30. Participation of Latin American technicians in courses sponsored by DNPM, the Brazilian Mining Institute (IBRAM) and CONSIDER.
31. Technical assistance for the undertaking of geological surveys and prospecting, encompassing aspects such as geophysics, drilling, chemical analysis and the evaluation of reserves.
32. Integrated natural resource surveys based on radar images and remote sensors with the elaboration of geological, geomorphological, petrological, vegetational, potential land use and pluviometric mapping.
33. Technical assistance in the concentration and beneficiation of iron and non-ferrous (aluminium, zinc, copper, nickel, tin, magnesium, chromium, titanium, niobium, wolfran, tantalium and manganese) metallic minerals, and non-metallic minerals (fluorine, coal and phosphorous).
34. Technical assistance for the creation and development of organizations for personnel training with regard to the concentration and beneficiation of minerals.
35. Technical assistance for designing and constructing fertilizer-producing plants.
36. Technical assistance in metallurgical and smelting processes and projects of iron, manganese, tin, lead, zinc and copper.

/COLOMBIA

COLOMBIA

Needs:

37. Implementation of a system of information on the mining and metallurgical sector.
38. Technical assistance for the use of direct reduction methods for iron ore.
39. Advisory assistance in the entire process of development of porphyric copper deposits, including marketing.
40. Advisory assistance in the entire process of development of bauxite deposits, including marketing.

Offers:

41. Exchange of information and transfer of experience in the exploration, evaluation and characterization of coal.

COSTA RICA

Needs:

42. Technical assistance in the field of mining economics, mineral and metallurgical engineering as applied principally to the development of precious minerals (gold and silver), ferrous and non-ferrous minerals (aluminium, copper, lead, zinc, manganese, titanium, chromium, nickel) and industrial non-metals.
43. Technical assistance for university instruction in the field of mining and mineral geology.

Offers:

44. The possibility of training geologists in the Escuela Centro-Americana de Geología of the University of Costa Rica.

ECUADOR

Needs:

45. Technical assistance for the development of the small- and medium-scale mining of metals and non-metals.

Offers:

46. Exchange of information and technical assistance for the drawing up of geological maps.
47. Exchange of information and technical assistance for the study of volcanic phenomena.

GUATEMALA

Needs:

48. Advisory assistance and training for the development of exploration units.
49. Technical and legal assistance in the promotion of small-scale mining in co-operatives or other operations.
50. Obtaining of scholarships for university and post-graduate studies in professions related to mining.
51. Technical assistance in the prospection of metallic and non-metallic mineral deposits.
52. Technical assistance for the development of gold placers.
53. Legal assistance in the area of mining taxation systems.

/54. Technical

54. Technical assistance in the management, purchase and operation of equipment, laboratory analysis and geological evaluation.
55. Assistance in evaluating metallic and non-metallic mineral deposits with the aid of photogrammetry, in the compilation of technical geological maps, in the use of X-rays and quantitative analysis for the study of minerals, and in the fields of stratigraphy and lithology.

Offers:

56. Training of middle-level technicians in geological exploration.
57. Exchange of geological and technical information.

GUYANA

Needs:

58. Technical and economic assistance in the mineral exploration and development of the Barama-Cuyuni sector of the Barama Mazaruni Belt.
59. Technical and economic assistance in relation to project proposals for gold prospecting.
60. Technical and economic assistance for kaolin development in Guyana.
61. Technical assistance for the development of manganese deposits.
62. Technical assistance for lapidary rationalization.

HONDURAS

Needs:

63. Technical assistance for the reactivation of abandoned silver, zinc and gold mines.
64. Technical assistance for the development, exploitation and marketing of gold placers.
65. Evaluation of geological mining reports to select the most feasible ones, in technical and economic terms.
66. Need for training of professional and technical manpower resources.

JAMAICA

Needs:

67. Technical assistance for the diversification of bauxite and alumina markets.
68. Technical assistance in the development of the mineral industry, encompassing periodic training assistantships, especially in relation to the processing of limestone, marble, gypsum and clay.
69. Evaluation of the feasibility of producing aluminium products.

Offers:

70. Training in exploration, evaluation of reserves and planning of bauxite mines.
71. Advisory assistance in mining legislation, the granting of concessions, and occupational safety.
72. Advisory assistance in methods of rehabilitating worked areas.
73. Chemical and mineralogical tests for bauxite.

/MEXICO

MEXICO

Offers:

74. Technical assistance in: general geological exploration; interpretation of satellite images and photogeology; air photographic surveys in black, white and colour; air and land geophysics by all methods; geochemical exploration studies; planning of mining enterprises; evaluation of metallic and non-metallic mineral deposits; development of small- and medium-scale mining; design and operation of all types of plants for beneficiation and industrialization of metallic and non-metallic minerals, fertilizer plants, and mine operation of all kinds.

PANAMA

Needs:

75. Advisory assistance in the planning and development of mining towns, with special emphasis on the social impact and the integral development of the affected region.
76. Technical assistance for a systematic and complete survey of the mineral resources of the country to find out its mining potential.
77. Technical assistance for the organization and promotion of small-scale mining through the formation of co-operatives, or similar systems, especially to study and exploit alluvial gold, ornamental and semi-precious stones.
78. Training of technical personnel of mines in operation.

PARAGUAY

Needs:

79. National geological mapping.

PERU

Needs:

80. Assistance in the definition of coal mining policies, legislation, prospecting, exploration and exploitation, uses and applications of coal on small, medium and large scales.

Offers:

81. Technical assistance to countries of the region to advise them on the establishment of bodies designed to promote national mining: geological, mining and metallurgical research centres, mining development banks, corporations to exploit and market minerals, etc.
82. Technical assistance to countries for development in depressed areas and areas in which mining can play a major role as an activating factor in the economy of the region.
83. Advisory assistance to countries for the establishment of bodies fundamentally designed to develop small- and medium-scale mining with special emphasis on exploration for and beneficiation of polymetallic and auriferous minerals.
84. Organization by Peru of a School for Advanced Mining Studies, aimed at training, by means of different disciplines, Latin American professionals who already have some experience in the mining field. This school could be largely made up of professors from the region.

/85. Technical

85. Technical assistance to schools of higher mining education in some countries of the region (especially Central America and the Caribbean) in order to improve the level of some courses, implement new professorships or offer post-graduate courses.
86. Advisory assistance and consultation in the management of geological mining and metallurgical projects: feasibility studies, basic and detailed engineering, supervision of construction, planning and programming, cost control, logistics, testing and putting into operation.
87. Technical assistance in the evaluation of mines, geological surveys, prospecting, exploitation and beneficiation of metallic minerals (mono- and polymetallic) and economic and financial studies in the mining and metallurgical field.
88. Development of engineering in lead, zinc and copper refineries.
89. Advisory assistance in the planning of geological-mining-metallurgical development at the national level, mining legislation, statistics, trade information and management planning.

DOMINICAN REPUBLIC

Needs:

90. Technical assistance through the offer of scholarships for young professionals to strengthen their knowledge by holding assistantships in the mining countries of Latin America, especially in regard to the exploitation of both underground and open pit mines.

MATRIX OF HORIZONTAL CO-OPERATION FOR THE DEVELOPMENT OF THE
MINERAL RESOURCES OF LATIN AMERICA

Requesting countries	Offering countries	Argentina	Bolivia	Brazil	Colombia	Costa Rica	Chile	Ecuador	Guatemala	Guyana	Honduras	Jamaica	Mexico	Panama	Paraguay	Peru	Dominican Republic
Argentina			7-9				7		2-3 4-6	2					79	2	
Bolivia	1			14-16 17-19	18			17	17-18 19-20	17	17-19 20-21		20	17-18		14-16	
Brazil			9-10 11-13 14-15 16		27-29 30-38 40				28-29 30-31 32-33 36	58-60 61-28	28 29-30			76	79	29-30	
Colombia			8-15													41 80	
Costa Rica																	
Chile					24	39											
Ecuador						47			46		46					46-47	
Guatemala																	
Guyana					40												
Honduras																	
Jamaica																	
Mexico			8-10 12-14 15-16	22-23 26	37-38			45	48-50	58-59 60-61 62	63-65 66			76-77 78	79		90
Panama																	
Paraguay																	
Peru			9-12 13-14 16-19	22 23-24 26 83	37 39 81-83 84	84		45-83	48-81 83-84 87-89	58-85	63-64 65-81 83-84 90		75-76 77-78 82-84				90

Annex 1

LIST OF PARTICIPANTS

1. Member States of the Commission

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Annex 2

LIST OF DOCUMENTS PRESENTED AT THE MEETING

1. Documents presented by the Secretariat

1. Provisional agenda (E/CEPAL/SEM.3/R.1/Rev.1).
2. Annotated provisional agenda (E/CEPAL/SEM.3/R.2).
3. Possibilities for co-operation and industrial complementation between Latin America and Japan in producing and marketing iron and steel (E/CEPAL/SEM.3/R.3).
4. Evolution of, and prospects for, the mining sector in Latin America (E/CEPAL/SEM.3/R.4).
5. Latin American supply and major world market demand for the principal metals, 1970-1990: Aluminium, copper, iron, nickel, lead, zinc, tin (E/CEPAL/SEM.3/R.5).
6. Proposals for horizontal co-operation projects for the development of the mining and metallurgical sector of Latin America (E/CEPAL/SEM.3/R.6).
7. Cooperación económica entre Brasil y el Grupo Andino: El caso de los minerales y metales no ferrosos (E/CEPAL/SEM.3/R.7).
8. Cooperación económica entre Brasil y el Grupo Andino: El caso de los minerales y metales no ferrosos (E/CEPAL/SEM.3/R.8).
9. Posibilidades de cooperación y complementación industrial entre América Latina y Japón para la producción y comercialización del hierro y el acero (E/CEPAL/L.265).
10. Oferta de América Latina y demanda de los mayores mercados mundiales de los principales metales, 1970-1990: Aluminio, cobre, hierro, níquel, plomo, zinc, estaño (E/CEPAL/L.269).
11. Oferta de América Latina y demanda de los mayores mercados mundiales de los principales metales, 1970-1990: Aluminio, cobre, hierro, níquel, plomo, zinc, estaño (E/CEPAL/L.269/Corr.1).
12. Report of the Meeting on Horizontal Co-operation for the Development of the Mineral Resources of Latin America, organized by the Economic Commission for Latin America (CEPAL) and the Colombian Mining Corporation (ECOMINAS) (E/CEPAL/SEM.3/R.9).

2. Documents presented by representative of the member States
of CEPAL and by observers

1. Experiencia y perspectivas del sector minero en Argentina. Oscar Valentín Reverberi (Argentina).
2. Proposición de líneas generales y específicas de acción para el desarrollo de la industria minero-metalúrgica de América Latina. Ing. Miguel de L. Bohomoletz, Director de Tenenge Promoções e Tecnologia TPT S/A (Brazil).*/
3. Temas de cooperación tecnológica entre países de América Latina. A.F. Silva Jr. (Brazil).*/
4. Evaluación y perspectivas del sector minero en el Brasil. Dr. Iván Barretto de Carvalho (Brazil).
5. Situación y perspectivas generales del desarrollo minero de Costa Rica y requerimientos de cooperación horizontal. Rolando Castillo M., June 1982 (Costa Rica).
6. Presentación para el Seminario de Evolución y Perspectivas del Sector Minero, Dirección General de Minería e Hidrocarburos, June 1982 (Guatemala).
7. The mining sector of Guyana in relation to horizontal co-operation. Mining among Latin American countries. G.W. Walrond, Deputy Commissioner, Guyana Geological and Mines Commission, June 1982 (Guyana).
8. Síntesis de la monografía de la minería en Honduras. Secretaría Técnica del Consejo Superior de Planificación Económica, Sector Minería. Presentada por Lic. José Zaldaña Lara (Honduras).
9. La relación entre la actividad exploratoria y los incrementos de la producción de minerales en México. Ing. Guillermo P. Salas, Director General del Consejo de Recursos Minerales, June 1982 (Mexico).
10. Proyecciones del consumo de minerales en México al año 2000. Consejo de Recursos Minerales, June 1982 (Mexico).
11. Anexo estadístico de la minería mexicana. Consejo de Recursos Minerales, June 1982 (Mexico).
12. Situación actual y futura. Consejo de Recursos Minerales (Mexico).
13. Papel e importancia de los organismos y empresas del sector público en el desarrollo de los recursos mineros. Dr. Daniel Esquivel K. (Panama).
14. Problemas y experiencias en la gestión minera estatal del Perú, período 1950-1981. Dr. Luis García Núñez, June 1982 (Peru).

*/ Observers.