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REPORT OF THE REGIONAL SEMINAR ON METROPOLITANIZATION AND ENVIRONMENT

(Curitiba, 16 to 19 November 1981)

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CONTENTS

/Preamble

Preamble

This report summarizes the conclusions and recommendations of the Regional Seminar on Metropolitanization and Environment held at Curitiba, State of Paraná, Brazil, from 16 to 19 November 1981 by the Economic Commission for Latin America (CEPAL) in conjunction with the Urban Planning and Studies Institute of Curitiba (IPPUC), under the auspices of the United Nations Environment Programme (UNEP) and the Municipal Prefecture of Curitiba.

As part of the project on horizontal co-operation in Latin America with regard to styles of development and environment, the seminar was aimed at collecting, evaluating and exchanging experience with a view to providing such co-operation, for the following purposes in particular:

(a) Making progress in the understanding of the society/environment relationships involved in metropolitan development, especially with regard to housing, transport and the provision of equipment;

(b) Within these fields, studying and proposing policy options ensuring a more integral, sustained and autonomous development of the resources of the region, especially environmental resources (material, energy, territorial and infrastructure resources), and

(c) Proposing ways for the practical incorporation of these considerations into the formulation of metropolitan policies and plans, in particular, those affecting the population in the lower income groups.

The cases selected included three metropolises in Brazil -Curitiba, Rio de Janeiro and Belo Horizonte- and five in other countries -Caracas (Venezuela), Lima (Peru), Havana (Cuba), Mexico City (Mexico) and Santiago (Chile). Consideration was also given to the ciry of San Luis (Brazil) as an exceptional case of urban growth with prospects for the development of metropolitan functions in the short term. In addition, consideration was given to ideas of a general nature and proposals concerning mass transport based on suggestions submitted by CEPAL.

A brief description is given below of the activities of the Seminar. the general and specific conclusions reached in it and its recommendations. The programme of the Seminar, the list of participants and the list of documents submitted are annexed. These documents will be issued in the near future by the organizing bodies.

I. ORGANIZATION OF WORK

Place and date

1. The Regional Seminar on Metropolitanization and Environment was held in the city of Curitiba, State of Paraná, Brazil, from 16 to 19 November 1981. It was organized by the Economic Commission for Latin America (CEPAL) and the Urban Research and Planning Institute of Curitiba (IPPUC) under the auspices of the United Nations Environment Programme (UNEP) and the Municipal Prefecture of Curitiba. The fourth meeting of Ecodesarrollo of Brazil was held at the same time.

Attendance

2. The Seminar was attended by representatives of the following institutions: Town Planning Institute of Paris (IUP); Centre for Development Studies of the Central University of Venezuela (CENDES); Centre for Development Studies and

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Promotion in Lima, Peru (DESCO); Ecodesarrollo Centre of Mexico (CECODES); Environmental Research Planning Centre of Santiago, Chile (CIPMA) and the following Brazilian Institutions: Urban Research and Planning Institute of Curitiba (IPPUC); Institute of Appropriate Technologies; Municipal Prefecture of Curitiba, Co-ordination of the Metropolitan Area of Curitiba; Instituto Paranaense de Desenvolvimento Economico e Social; Companhia de Habitação Popular de Curitiba; Secretaria de Estado do Planejamento; Instituto Estadual de Florestas; Fundação Estadual de Engenharia do Meio Ambiente (FEEMA); Fundação de Tecnologia Industrial - Associação de Moradores de Ipanema; the Federal Universities of Río Grande do Sul, Minas Gerais and Paraná; the Minas Gerais Technological Centre (CETEC): Financiadora de Estudos e Projetos (FINEP); Empresa Brasileira dos Transportes Urbanos; Superintendencia dos Recursos Hídricos e do Meio Ambiente (SUREHMA); Conselho Nacional de Desenvolvimento Urbano; Secretaria Especial para o Meio Ambiente (SEMA) and the Secretaria de Planejamento do Ministerio do Interior.1/

3. The Regional Human Settlements Programme, the CEPAL Transport Division and the CEPAL/UNEP Development and Environment Unit and the CEPAL office in Brazil also participated in the work of the Seminar.

Agenda 2/

4. The work of the Seminar was based on the following agenda:

1. Opening meeting. Presentation and discussion of the conceptual framework.
2. Overall policies relating to metropolitan and environmental development in Brazil. Case studies: Curitiba, San Luis, Belo Horizonte and Rio de Janeiro.
3. General presentation and introduction of case studies relating to other countries: Caracas, Lima, Mexico City and Santiago, Chile.
4. Consideration of case studies and exchange of experience relating to five main topics: topics of general interest; integrated development and environment; housing; transport and energy and community participation.
5. Conclusions and preliminary recommendations. Closing meeting.

Opening and closing meetings

5. The opening meeting was chaired by Mr. Jaime Lerner, Prefect of Curitiba, who welcomed the participants and drew attention to the importance of the joint CEPAL/IPPUC effort and the experience of Curitiba over the past decade, as an incentive for Latin American co-operation in the field of metropolitan development policies. The Co-ordinator of the Development and Environment Unit also spoke, on behalf of CEPAL and UNEP, and after describing the CEPAL programme of work in this field, examined the role played by the process of metropolitanization in the interrelationships between styles of development and environment. In the discussion of the topic which followed, statements were made by representatives of the organizing bodies and the Ministry of Interior of Brazil and by other participants. In this connexion the following documents were distributed: La dimensión ambiental en los estilos de desarrollo de América Latina (E/CEPAL/G.1143, July 1981); Las políticas metropolitanas en un contexto de experiencia global (E/CEPAL/PROY.6/R.31,

1/ See the list of participants in annex 1.
2/ See the programme of work in annex 2.

/18 September

18 September 1981); and El estado de los asentamientos humanos en América Latina y el Caribe, prepared by the Department of Human Settlements and Public Works of Mexico (SAHOP).3/

6. The closing meeting was chaired by Mr. Cassio Taniguchi, President of IPPUC, who drew attention to areas in which IPPUC might broaden its approach and its activities, becoming involved in practical experiences which might provide a basis for co-operation to that end. He applauded the achievements of the Seminar and undertook to see that the institution he headed remained in the orbit of co-operation which had been embarked upon. The CEPAL/UNEP representative also expressed his satisfaction with the results achieved and with the degree of interest shown in the cases studied. The Seminar had got the horizontal co-operation activities in this field, the first of their kind in the region, off to a good start.

Officers

7. The office of Chairman of the Seminar devolved upon Mr. Jaime Lerner, the Prefect of Curitiba, and on the Co-ordinator of the Joint CEPAL/UNEP Development and Environment Unit. The meetings at which the Brazilian case studies were presented were presided over by Mr. Octavio Elisio Alves de Brito, Co-ordinator of the Ecodesarrollo Group of Brazil. The meetings at which the cases of four other countries were presented were presided over by a representative of the Joint CEPAL/UNEP Development and Environment Unit. The duties of rapporteur of the working groups were performed by Ms. Hélène Lamcq, Mr. Mário Zolezzi, Mr. Carlos Ceneviva, Mr. Celso Bredariol and the representative of the Joint CEPAL/UNEP Unit.

Short account of the proceedings

8. The consideration of the Brazilian case studies consisted on the one hand of the main proposals and questions arising out of the opening discussion of metropolitanization and environment and, on the other hand, of statements on metropolitanization policy in Brazil and the Federal Environment Law, which were made, respectively, by Mr. Mauricio N. Batista, Deputy Under-Secretary of the Department of Urban Development, and Mr. Pablo N. Neto, of the Special Department on the Environment (both these departments belong to the Ministry of the Interior).

9. Prior to the presentation of the Curitiba case, for which Prefect Jaime Lerner was responsible, experts of IPPUC conducted a guided visit to the city and to the main works achieved over the past decade. Mr. Lerner reviewed the history of the metropolis; explained the principles behind the work of the Prefecture in the past decade; examined some of the accomplishments and difficulties encountered and, using audiovisual aids, described the plans for managing the metropolis in the near future. The document "Contribuição para a definição de uma política de desenvolvimento para a região metropolitana de Curitiba" (IPPUC, October 1981), was distributed to the participants for use as background material in group discussions.

10. In the afternoon the Ecodesarrollo Group led the consideration of the Brazilian case studies. Mr. Octavio Elisio Alves de Brito introduced the speakers, made a

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3/ Documents submitted by the CEPAL Secretariat to the Latin American Conference on Human Settlements held in Mexico City from 7 to 10 November 1979.

/general presentation

general presentation concerning the cases selected and described the orientation and objectives of the Ecodesarrollo Group. The case of San Luis was described by Mr. Rodolfo José Costa e Silva; the case of Belo Horizonte, by Mr. José de Anchieta Correa and the experience of the inhabitants of Ipanema, by Mr. Roberto Mariano da Silva. The main observations concerning these statements were organized by Mr. Mário Zolezzi (Peru), Ms. Margarita Nolasco (Mexico) and Mr. Alberto Urdaneta (Venezuela), respectively. These observations led to a detailed discussion of each case, in which attention was drawn to the achievements made and to the challenges and points of general interest for the entire region.

11. On the third day consideration was given to the cases of other metropolises in Latin America on the basis of the studies prepared by institutions in consultation with CEPAL/UNEP. These studies were introduced by the representative of the secretariat, who referred to the criteria used in selecting the cases and the advisers and described the general approach taken to the work, emphasizing the community participation mobilized for each case. He said he regretted that the authors of the study on Havana had not been able to come since their presentation would have added to the value of the discussion and recommendations of this Seminar.

12. Ms. Sonia Nogueira and Mr. Alberto Urdaneta, of the Development Studies Centre (CENDES) presented the case of Caracas; Mr. Mário Zolezzi, of the Development Studies and Promotion Centre (DESCO), introduced the case of Lima; Ms. Margarita Nolasco of the Ecodesarrollo Centre (CECODES), presented the case of Mexico and Mr. Guillermo Geisse of the Environment Research and Planning Centre (CIPMA), the case of Santiago, Chile. The main observations were organized, respectively, by Mr. Francisco Cipolla (IPPUC), Mr. Octavio Elisio Alves de Brito (FUNDEP), the representative of the Joint CEPAL/UNEP Unit and Ms. Hélène Lamicq (IUP).

13. These observations fueled the debate which followed, in support of which documents especially prepared for that purpose were distributed.4/

14. When the plenary meetings at which the cases were presented had ended, the Seminar formed into groups to consider the topics of major interest and to prepare the conclusions and recommendations in five areas: general conclusions, integrated and environmental development, housing and land uses, transport and energy and community participation.

15. On the final day of the Seminar the working groups continued with their tasks, and their reports were introduced in plenary in the afternoon. The presentation of the report of the transport and energy group was accompanied by a statement by a member of the secretariat on the topic "Family income, urban transport policies and socio-economic justification for metropolitan railways", in connexion with which documents E/CEPAL/PROY.6/R.29 and E/CEPAL/R.264 and a document entitled "Sistema de Transporte, Cidade de Curitiba" were distributed.

II. GENERAL CONCLUSIONS

16. The participants noted the great interest awakened by the exchange of experience in the Seminar and pointed out that, important as they were, these experiences were in general not very well known among the competent authorities of other countries.

4/ E/CEPAL/PROY.6/R.27, R.28, R.30 and R.32. (See the list of documents in annex 3.)

17. It was considered to be essential to intensify co-operation in this connexion between developing (horizontal) countries and regions, not only to strengthen the understanding and monitoring of the process of metropolitanization and its repercussions on the environment but also to strengthen horizontal co-operation itself and development in general throughout the region.

18. This objective reflects the extreme complexity of metropolitanization, its specificity and scope in the region and the tremendous repercussions it has on other spheres of development. Moreover, the scientific, technical and participative potential on which the metropolitan authorities can rely is very great in each country. Horizontal co-operation could be dynamized and reoriented towards the generation of alternatives which, because of the very nature of the metropolitanization process, would benefit the whole body of human settlements.

19. It was noted, however, that there is no institutional scheme for articulating horizontal co-operation among metropolitan authorities or among other kinds of organizations devoted to their development in Latin America and the Third World in general.

20. The participants drew attention to two kinds of similarities and differences. On the one hand, the problems encountered in the metropolises studied were very similar in spite of the different socio-political contexts in which they were found. On the other hand, there was similarity and convergence between the proposals and discussions concerning each case in spite of that difference in context and also in spite of the different perspectives and experiences of the groups analysing the cases.

21. It was pointed out that the cases reviewed in the Seminar related to economic and political situations which were widely differentiated. Countries with serious balance-of-payments problems and countries with no imbalances; countries with abundant petroleum and countries importing petroleum; countries with relatively advanced agrarian reform and countries with no agrarian reform; countries which were relatively open to democracy and countries with no democratic perspective; countries in which the State had growing responsibilities and countries where the responsibility was still in the hands of the market; countries with high rates of population growth and countries with moderate rates of growth; countries where industrial substitution was protected and countries which were increasingly open to the exterior.

22. In all these situations there was still, however, a fairly accelerated process of rural migration and spreading concentration in cities, which even reached the metropolitan areas where there was also a growing concentration of jobs which lent vitality to economic and cultural life and played a basic role in the reproduction, propagation and transformation of the style of development and, within it, in the general pattern of relations with the environment and its resources.

23. The general problems which held the attention of the participants were mainly what is known as "top-heaviness", the distribution of environmental costs and benefits and residential segregation.

24. Top-heaviness was, generally speaking, understood to mean an excessive demographic, economic, cultural and administrative concentration in the metropolises, to the detriment of other settlements of a country. In this respect, two positions were taken: some participants felt that such concentration and the environmental problems to which it gave rise (greater congestion, greater pollution and greater alterations of the environment) were only a reflection of the unfair distribution of income in society as a whole; in their view, environmental problems must be solved by reducing that concentration and ending the injustice it produced. This meant

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that, in order to achieve fair distribution, the metropolitan areas must be deconcentrated, which would, at the same time, end the environmental problems.

25. Other participants felt that the relationship between metropolitan concentration and income concentration, and hence between deconcentration and equity, was not so symmetrical. Nor was there necessarily a relationship between the degree of concentration and the degree of environmental deterioration. A metropolitan deconcentration policy could result only in a deconcentration of the poor sectors (and an increase in their number) and in a decline in the environmental quality of such sectors. Moreover, an income distribution or environmental improvement policy might be applied without causing the population to deconcentrate. Because of the persistent interest in and importance assumed by the objective of deconcentration, even in countries with different socio-political systems, it was felt that it deserved consideration in greater depth.

26. On the other hand, there was agreement with regard to the relationship between the distribution of environmental costs and benefits, on the one hand, and overall development conditions on the other. Emphasis was placed on the fact that the crux of the matter did not lie in the size of the metropolis or in the speed of its growth or in the kind or degree of environmental damage but in the distribution of the costs and benefits derived from environmental change. The economic and social importance of their distribution would depend on the way in which it fit into the general pattern of distribution and growth of the society in which it took place and not on the magnitude of the physical changes made.

27. The example used was that of the policies in support of self-help construction which were generally considered to remedy the market's inability to meet the housing needs of the poor sectors. In one of the cases studied, the gradual improvement in self-help housing ended when, because of lack of employment or other factors, the dweller had to sell his dwelling and move to another marginal area, where the whole series of events was repeated. In other cases, improvements in housing reached a limit beyond which, because conditions were not right for an overall improvement in the well-being of home dwellers, dilapidation and overcrowding began to set in.

28. Another example was that relating to environmental considerations in big investment projects for the exploitation of non-renewable resources. As was seen in one of the cases, the importance attached to environmental effects in negotiating a project which would have an impact on an entire metropolis depended on such important factors as the pattern of accumulation of the country, the negotiating capacity of the government vis-à-vis the big transnational corporations, the natural resources policies, the technological capacity of the country in key sectors, the negotiating ability of the local authorities and people, etc. When a decision had to be reached in which such factors had an impact, the main environmental problem was to determine who would benefit and who would be harmed by the big physical changes which must necessarily take place; the reply to that question would govern the decisions taken on positive environmental changes which must be maximized and negative changes which must be minimized.

29. Residential segregation -not to mention the environmental differentiation resulting from it- was considered to be the factor governing the organization of space in the inner city which best reflected the pattern of distribution and the stratification of our societies. This segregation mainly affects access to ownership of urban land, to housing and sanitation; but it also affects the infrastructure, the landscape, equipment and services and transport. The best conditions are developed or created in the residential areas of the privileged sectors, segregating the majority sectors, in whose residential areas the greatest disadvantages are present.

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30. There are explicit policies (supported by international declarations, constitutional principles and laws and regulations of various kinds, including approved programmes of action) recognizing the characteristics and importance of this situation, seeking definitive solutions to it and, in general, making the State responsible for securing adequate land, housing and environmental conditions for the whole population.

31. In practice, however, the situation appears to remain the same and even, in some cases, to become worse. The responsibility of the State is often transferred to market mechanisms and to entrepreneurs who, because they cannot satisfy the needs of the lower-income sectors, force the development of unstable residential communities and shanty towns and the adoption of varieties of self-help building which abet segregation.

32. It was pointed out that some housing policies seem to meet the needs of the financial system and of speculators more than those of the masses for housing and basic services; thus, the supply tends to come increasingly into the hands of private ownership while the land and housing market grows more and more selective and exclusive.

33. Participants reiterated the need to take an integral view of this kind of problem and of the metropolitanization process in general so as to understand and handle it better, establish a network of horizontal co-operation or establish a new dimension, such as the dimension of relationships with the environment and its resources.

34. This difficult challenge, with which authorities, planners and research workers are always faced, was also reflected in the Seminar. It was noted that in some cases there was a tendency to view the integral problem in the traditional parcial perspective of, for example, the architect, the draftsman, the social scientist, the engineer or the technologist; or else an attempt is made to make some new topic, such as the environment, or new discipline (also partial), such as ecology, data processing, semiology or the theory of systems, play the role of integrator.

35. The line which was favoured in the Seminar, however, was to consider new topics and thrusts as supplementary and not as a substitute for traditional approaches, with a view to advancing towards an integral perspective. On this basis, contributions were made which might be classified under five headings. The first group of contributions -those of a political and institutional nature- were put under participation and planning. The second, which were more conceptual and technical in nature, were classified under environmental potential and restrictions, the ecosystems approach, environmental improvement and environmental protection.

III. SPECIFIC CONCLUSIONS

36. From the political point of view, it was pointed out that the solution to some of the more acute problems of metropolitan development (and the environmental relations involved in it) does not depend on their recognition which has already been secured, or on technical instruments, which are available, but on the possibility of removing the obstacles standing in the way of the implementation of the policies set up for that purpose.

37. It was admitted that in many ways the possibility of that happening depends on factors which changed in a way which had been historically defined but also that, within the present limitations, it was feasible to eliminate some obstacles and make progress towards those changes, especially in metropolitan areas. For this purpose, two fundamental institutional factors were named -community participation and planning.

/1. Participation

1. Participation

38. The observations made with regard to participation included the following:

(a) The representation of community interests was uneven in all the cases studied, and community participation was not identified as a government policy in any of them.

(b) Some attempts at participation (on the initiative of governments and communities) especially motivated by environmental problems could be observed; however, in none of those attempts had it been possible to exercise effective influence over decisions affecting public or environmental resources.

(c) The backbone of a participatory policy consisted in: (i) the right of all, and not just some, social groups to be informed, to express their opinion and to influence decisions on the use of their resources; (ii) the objective efficiency of the options taken by the masses to compensate for the inability of the system to resolve the problems which it itself generates; (iii) the recognition of the community as a source of initiative and identification of problems and solutions and (iv) greater bargaining power to make action possible and to overcome the aforementioned obstacles to metropolitan development policies.

(d) For these purposes, it was necessary to provide incentives for the various approaches to community organization and for the channels through which communities express their demands, thereby ensuring that they enjoy the autonomy due them and that the social forces are in balance.

(e) Participation must extend beyond the decision-making spheres into the spheres of research, learning and dissemination. For this reason, it was necessary to build awareness and to articulate and mobilize different sectors, depending on their context, of which mention should be made of the following:

(i) Technicians capable of transmitting information to occupants' organizations and asking their members for suggestions;

(ii) The local population affected by the projects and their outcome;

(iii) The public bodies responsible for authorizing, disseminating and modifying concrete projects;

(iv) Groups for retrieving, adapting and generating simple technologies;

(v) Universities in their role as bodies which generate and transmit the more advanced options;

(vi) Representative organizations, such as political parties and other groups.

(f) The participation of bodies representing the community in the preparation of some of the documents submitted to the Seminar was substantial and made each of the documents more meaningful. An appraisal of their experience would round off their contribution and benefit their incorporation into other research, at both national and international level.

(g) There was need to strengthen the attempts at participation already begun and, with this in mind, to collect and disseminate concrete experience at international level. In cases like that of Curitiba, which had resulted in successful approaches to the solution of physical planning problems, conditions seemed ripe for the development of pioneer participative experience in the solution of other problems.

/2. Planning

2. Planning

39. Attention was drawn to certain aspects of planning, including the following:

(a) Planning was always an expression, at the technical level, of a certain set of interests. The basic requirement for the new approaches sought to planning (more efficient, realistic and equitable) was an opening for mass participation.

(b) Metropolitan planners do not always spot or favour the variety of existing options for taking advantage of potential, reducing risks and improving the environmental conditions in the lower income sectors. This was usually due, more than to technical or financial incapacity, to identification with other interests, a failure to consider the environment explicitly, insufficient ability to assume control over relatively fast processes or weak bargaining power.

(c) It was necessary, in addition to making a greater commitment, to apply new criteria in the formulation of options, as for example, the criterion of studying organizational solutions before considering solutions based on investment; soliciting and benefiting from endogenous options and not accepting endogenous methodologies and solutions indiscriminately; adopting adequate technologies from the human point of view, i.e., technologies which could use local potential, traditions and environment to their best advantage and were geared to the resources and growth rates of the country concerned, instead of favouring gigantism in construction, expensive ostentation and the practice of copying transferred models.

(d) Generally speaking, regional planning is the most appropriate action for introducing environmental considerations into metropolitan development policies, especially those related to the exchange of materials and energy with their area of influence. Nevertheless, this planning must be closely linked to local planning -more appropriate for detecting problems, potentials and specific solutions and for promoting participation- and to national policies and programmes. It should be remembered that it is the latter that ultimately defines the exchanges of materials and energy between regions and with the exterior, as well as the distributive, consumption, spatial organizational, technological and other patterns which determine the basic relations between the society and the environment in metropolitan development.

(e) It should be kept in mind that the planning style adopted in the metropolitan areas has wide repercussions on the planners of other human settlements.

(f) An attempt should be made to make the programmes, in content, language and method of dissemination, within the reach of the sectors who are supposed to benefit by them and not to allow them, as usually happens, to become advanced information available only to the privileged groups, who can thus broaden their bargaining position and reinforce their strategies to the disadvantage of the majority sectors.

(g) It is necessary to establish a clear assignment and delegation of responsibilities between metropolitan planners and other planners, and channels of communication which make it possible to recognize and respond adequately to the initiatives of national or regional interest which may affect the local interests and environment.

(h) The quality and continuity of the metropolitan planning technical teams, as well as the representativeness and power of their authorities, are key factors in assuming an effective control of the metropolis and achieving greater success in the implementation of policies. Acting against these achievements, however, are factors such as problems involving election of officials, discontinuity in metropolitan management (with duplication or interruption of actions), bureaucracy, etc.

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40. From the conceptual point of view, there was a recognition of the importance and convergence of the approaches of CEPAL, the Ecodevelopment Group and those supported by the Curitiba case studies and experience in the past decade, a recognition which extended to other Latin American proposals. However, the need was shown for a greater clarification of the roots, specificity and trends of the process of metropolitanization. For example, a better explanation is needed, inter alia, of what common factors produce the similarities encountered in the processes of metroplitanization despite differences in context, what the consequences of these differences are in the respective metropolises and what factors distinguish a metropolis from a non-metropolitan city.

41. To answer questions such as these, a general review of the theories on the subject may be necessary, in the light of a long-term historical perspective, within which other characteristics, factors and consequences, other future trends and other opinions on metropolitanization may be identified.

42. In the Seminar framework, the participants were limited to suggesting some contributions which might supplement these efforts from the point of view of relations with the environment, and which may be grouped around three principal aspects: relations between environmental potentialities and restrictions, the eco-systemic approach and environmental improvement and protection. The subject of urban transport was treated separately.

3. Environmental potentialities and restrictions

43. In relation to environmental potentialities and restrictions, the following points were made, inter alia:

(a) Behind many of the criticisms of the process of metropolitanization persists the traditional attitude, related to rural utopias and architectural and geographical harmonies which condemns the large city. This attitude has been reinforced by the attention given lately to pollution and other environmental deterioration, but also by a narrow environmentalism based on idealized ecological balances.

(b) This attitude is questionable in that it contradicts the real dialectic and makes it more difficult to understand such a complex process as metropolitanization, which draws together many aspects of both social and physical dynamics, and the interaction of the two; it transcends cultures, is fixed in space and, in some aspects, continues to exist even beyond the changes in the modes of production.

(c) Moreover, the metropolises are a privileged place for the creation, interconnexion, reproduction, organization and propagation of the innumerable information systems which maintain the social dynamic and that of its interactions with the environment.

(d) Such a reality does not allow itself to be bound by simplistic or unilateral views. It is not made up solely of blameworthy disadvantages or praiseworthy advantages. Advantages and disadvantages are relative and individual aspects and not immutable or intrinsic characteristics of metropolitanization, nor do they have the same value for different social groups or even for the same individual at different stages in his life.

(e) A focus is needed which incorporates into the criticism of the metropolises the risks and potentialities they offer their inhabitants and the society as a whole, including the environmental risks and potentialities and those derived from the capacity for change and development of the productive forces of the metropolis itself.

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(f) Least attention has been devoted to the potentialities. Although their realization does not depend entirely on the metropolises themselves, their understanding may be the key to a better explanation of the significance of the latter through time and space, above and beyond their disadvantages. It would also be worth investigating to what point it is true that the biggest contradiction of our metropolises is the one that exists between its rich potentialities and the poor use being made of them.

(g) The concern for the big problems should not obscure the reality and importance of daily ones. We should remember, for example, the role of constructed space in expressing the diverse and unforeseeable and in stimulating encounters and simultaneities. We should also emphasize the priority need to recover the value of multiple and open use of the collective environment, beyond the quantitative increase in public works for specific and segregated uses.

4. Ecosystemic approach

44. Recognizing the need for an integral, historical and long-term approach to the process of metropolitanization, there is particular interest in the potential contribution of the ecosystemic approach for this purpose. In this approach, human settlements are seen as nuclei of concentrated population, activities and structured environment, which generate and result from a constant flow of change and use of materials and energy -materials and energy which are exchanged with the immediate natural environment through metropolitan processes, and with other ecosystems through economic processes. From this point of view the following main considerations have been expressed:

(a) The quality of the environment where the population lives and the type and intensity of the demands it makes on the natural environment and its resources will largely depend on the way in which each settlement organizes, distributes and controls these flows.

(b) Housing, urban transport and equipment policies are determining factors in these flows because of the importance of these activities in the configuration of the environment produced, and because they are among the most important customers of material, energy and built-up space.

(c) The importance of the metropolises lies not only in the greater size, dynamic and diversity of these processes within them but also in the role they play in the reproduction of the general patterns of relationship with the ecosystems and the constructed environment.

(d) One of the main difficulties and at the same time one of the main potential contributions of this approach is that the flows and exchanges of material and energy crystallize the relationships between the society and nature according to the laws of physics and ecology, but at the same time are basically determined by historical and social relationships.

(e) The application of the ecosystemic approach to human settlements has not yet obtained convincing results and is facing serious difficulties. Some originate in the simultaneously physical and social basis of the settlements; others from the growing diversity and dynamic of the flows, especially those connected to industrial and service activities constantly undergoing innovation; and others, finally, from the lack of control over the majority of sources and uses of the materials and energy which are exchanged with the outside.

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(f) It is thus necessary to intensify and concentrate efforts in this field in two principal ways: (i) firstly, global research -along the lines of the work done by CEPAL, the Ecodevelopment Group and others- which qualitatively and collectively analyse the interaction between the major social and economic variables and the materials and energies. An attempt is made to identify the effects, on the short and long term, of these interactions on given social sectors, economic activities or environmental resources; on this basis, policy alternatives are sought in spheres such as technology, consumption, distribution of income and spatial location. (ii) Secondly, energy analyses of key sectors, such as construction. In this case, the attempt is made to establish the energy balance of the entire process of construction -from the extraction and transport of materials to the renovation and demolition of buildings, taking account of their different operational needs. The main purpose is to determine the consumption of energy by different sources, the energy effects of the changes in the sector, and the effects of source distribution and energy saving policies on the sector. At the detailed level, technical, design, space and time distribution evaluations are made, and points are identified where, for example, waste or inefficient use occurs, resulting in pollution and loss of resources.

(g) This latter type of study has made the most progress, however, in developed countries, with methodologies which are not always applicable in our countries. It is not that there is a lack of sophistication but that in these methodologies low priority and high cost information is used, and especially that fundamental aspects such as the social distribution of costs and benefits of a given system of flows are not considered. Apart from taking a cautious approach to these methodologies, it is necessary to develop methods and instruments of our own, and it is worth looking into studies such as those of CETEC and others represented at the Seminar.

(h) Given the difficulty of incorporating this type of research into metropolitan administrations which are subject to other pressures, and the inadvisability of duplicating efforts, it was suggested that this research could be developed within a framework of horizontal co-operation, based on experimental studies distributed among the countries according to their capacity.

5. Environmental improvement and protection

45. In relation to the improvement and protection of the environment the following points were made, *inter alia*:

(a) The access to the different environmental conditions, and the distribution of costs and benefits derived from the changes produced in them by the society, are essentially political processes and achievements. They are subject to variable power relations among pressure groups, whose interests are affected to different degrees by these conditions and changes.

(b) There are environmental conditions and changes which may have serious repercussions on the daily life of a broad sector of the population, especially the low-income population, repercussions which may have even further ramifications in the long term. In these cases, the improvement and protection of the environment may be converted into controversial arguments and struggle for social progress.

(c) To contribute to this analysis, it is necessary to develop simple instruments to evaluate, qualitatively and quantitatively, these conditions and changes as well as the costs and benefits they imply, valued in financial terms. Thus, metropolitan development policies would not only favour the incorporation of policies for improvement and protection of the environment but the operation would also be brought more easily within the reach of all population groups.

/(d) This

(d) This evaluation is especially important in the formulation of investment projects, whose calculations of costs and benefits should include those which will affect the environmental resources of the community. For this purpose, it should be stressed that nature, its resources and the constructed environment are part of the national wealth of the society, and as such are subject to increase, change and decrease.

(e) We should distinguish, on the one hand, the large-scale projects with regional effects from the small-scale projects with local effects, as well as the projects in progress from those being studied. The inclusion of environmental considerations will be more urgent and more difficult in the larger-scale projects and those in progress. Those of smaller scale and those being studied offer more freedom to formulate options aimed at a better and less costly utilization of the environment.

(f) Some evaluation methods of the so-called environmental effects and ecological costs may be inadvisable and inapplicable, not only when they are based on other realities or becuase of their costly and frequently unnecessary sophistication, but also because they consider physical changes without a concrete social referent.

(g) Many environmental improvement and protection measures are elementary practices of collective order and discipline, such as those dealing with beautification, waste disposal, transit norms, etc., under local authorities. Others, however, are associated with large-scale projects under the responsibility of the central government.

(h) The imposition of centralist measures sometimes creates more environmental problems than it solves, and the reaction of the local levels to them sometimes becomes an impediment to development actions. To avoid both consequences, the participation of local interests in the management of their own projects should be encouraged.

6. Transport and environment

46. The principal considerations on the influence of transport policies on metropolitan environment were the following:

(a) Transport policies have a multiple influence on the urban environment and on the general demand for natural resources, especially energy. In the urban environment, this influence is especially important in the use of land, the quality and availability of collective space and, especially, the access by different population groups to the use of this space.

(b) General zoning of the uses of urban land is closely related to the organization and categorization of the urban transport network, especially with the large rigid infrastructures of collective transport (railroads) and automobiles (highways).

(c) The quality and availability of collective space depend upon the importance given to these large infrastructures, the relative priority between public and private transport, and their organization.

(d) As shown by the Curitiba experience, a large part of the problems of urban organization and quality and availability of collective space may be resolved within the current context with simple, creative and organized measures, the application of current norms and techniques, and three basic policies: respect for land use zoning, a clear and organized highway system, and priority of mass transport. To a certain extent, planning of urban organization means planning transport, on the short and long term.

/(e) The

(e) The availability of the urban environment as a whole to the different population groups is determined by the distribution policy in force, particularly public transport services and investments connected with infrastructure and equipment. Some studies show that the owners of private automobiles and the higher income sectors among those who use public transport are usually favoured.

(f) Another influence on this availability is the public transport fare policy in relation to the income level of the users. In the region there is a great variety of policies, ranging from a tendency to liberalize fare systems which are already liberal, as in Santiago, Chile, to an increase in control over systems already under a fair amount of control, as in Brazil.

(g) Another influence is the rise in the costs of energy, required both for the operation of the transport systems and for the construction of civil projects and corresponding equipment. It is worth stressing again the extensive participation of the transport sector in the total demand for energy, and of metropolitan transport in the whole sector. Moreover, metropolitan transport has a demonstrable effect on the transport pattern of other cities.

(h) The search for a reduction in unit costs of energy is all the more important in the Latin American countries where services are less developed, since the expansion of coverage will mean a greater total energy demand. In this search, horizontal co-operation is particularly important in view of the similarity of the problems of technological acceptance and the interest in integration of the activities connected with the sector.

IV. RECOMMENDATIONS

47. The preceding conclusions would indicate that the improvement of metropolitan development policies, and the inclusion in them of environmental considerations such as those mentioned, justify a definite effort towards horizontal co-operation in the matter. The participants agreed that just as the environmental considerations require -and at the same time contribute to- an integral approach to metropolitanization, horizontal co-operation in the area of the environment should also be only one side of the unified horizontal co-operation scheme which considers metropolitan development from an integral point of view.

48. The Seminar thus stressed the crucial role which should be played by the authorities, researchers and bodies such as those represented at the Seminar, proposing the following recommendations:

(a) To promote the establishment of permanent horizontal co-operation machinery among the authorities responsible for the planning and integral development of Latin American metropolises.

(b) To encourage, as a substantive and creative part of this machinery, the formation of a nucleus which would unite the best scientific and technical capacity available to the present metropolitan authorities and the representative voice of the community interests. This nucleus would be responsible particularly for proposing the subjects and actions for co-operation which would be of the greatest interest, after comparing the experiences and trends of their respective metropolises; recovering and creating endogenous alternatives and approaches in priority aspects of metropolitan development; proposing and evaluating means to incorporate environmental considerations into the most relevant policies, and promoting research, training and dissemination in these fields, both nationally and internationally.

/(c) To

(c) To mobilize regional planners and scientists to carry out research specifically dedicated to metropolitan development, through interdisciplinary studies which are involved in action, open to community participation and co-ordinated with the co-operation machinery proposed. These bodies would clarify the conceptual and methodological difficulties encountered in the Seminar and provide the instruments necessary, for example, for the evaluation and quantification of the environmental changes and the costs and benefits they represent.

(d) To promote the activities and articulation of the sectoral machinery for horizontal co-operation already established in the region, on tasks of common interest connected with the metropolitan development. An example of this would be the Action Committee for Housing and Buildings of Social Interest of the Latin American Economic System (SELA); the Latin American Information Network on Human Settlements (LATINAH); the Latin American Association of Regional Development Corporations (public corporations) which depends on the Organization of American States (OAS); the Regional Programme on Human Settlements of CEPAL, and the Latin American Urban Transport Association, whose creation is being promoted by CEPAL, in conjunction with the Brazilian Urban Transport Enterprise.

49. Suggested as initial steps in this direction were: the dissemination of experiences such as those analysed at the Seminar; exchange of visits and the organization of meetings at the mayoral level; review and reassessment of the channels of co-ordination and exchange that exist, and the creation of a body for communication in this field. It was noted that the metropolitan bodies could count on sufficient resources to stimulate this initiative rapidly and flexibly.

50. Finally, it was proposed that the bodies represented at the Seminar should assume the principal responsibility for carrying out the recommendations proposed in the fields of their competence. In particular, it was suggested that the research bodies review and promote the analysis of the documents and conclusions of the Seminar in their respective countries, and that CEPAL, through its Regional Programme on Human Settlements and with the support of the Development and Environment Unit, should promote the creation of the proposed machinery at the international level.

/Annex 1

Annex 1

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/Annex 2

Annex 2

PROGRAMME

Monday 16 November

14:30 Opening session
Jaime Lerner, Prefect of Curitiba

15:00 Lecture: "Styles of development, environment and metropolitanization"
Osvaldo Sunkel, Co-ordinator of the Joint CEPAL/UNEP Development and Environment Unit

16:00 Panel: "Metropolitanization and environment"
Samuel Chamecki, ITAH (Curitiba)
Mauricio N. Batista, CNDU (Brasilia)
Otávio A. de Brito, FUNDEP (Belo Horizonte)
Guillermo Geisse, CIPMA (Santiago)
Jaime C. Santiago, MINTER (Brasilia)
Osvaldo Sunkel, CEPAL/UNEP (Santiago)
Cassio Taniguchi, IPPUC (Curitiba)

17:30 Lecture: "The policy of metropolitanization in Brazil"
Mauricio Nogueira Batista, Deputy Under-Secretary of the Subsecretariat of Urban Development of the Ministry of Interior of Brazil

18:30 Lecture: "The federal law of the environment"
Paulo Nogueira Neto, Secretary of the Special Secretariat of the Environment of Brazil

19:30 Closing.

Tuesday 17 November: Brazilian cases

08:30 Visit to the city of Curitiba: illustrative route of the case to be presented

12:00 Case study: Curitiba (Paraná)
Prefect Jaime Lerner

14:30 Presentation of the Brazilian cases by the Ecodevelopment Group
Otávio A. de Brito, FUNDEP

15:00 Case study: San Luis (Marañón)
Presentation: Rodolfo C. e Silva
Commentary: Mário Zolezzi (Peru)

17:00 Case study: Belo Horizonte (Minas Gerais)
Presentation: José de A. Correa (UFMG)
Commentary: Margarita Nolasco (Mexico)

18:30 Experience of the Residents' Association of Ipanema (Guanabara)
Roberto M. da Silva, FUTEC, Rio de Janeiro

Wednesday 18 November: International cases

08:00 Presentation of the international cases
Carlos Collantes, CEPAL/UNEP

08:30 Case study: Caracas
Presentation: Sonia Nogueira de Barrios, (CENDES)
Alberto Urdaneta, CENDES (Venezuela)
Commentary: Francisco Cipolla, IPPUC (Curitiba)

10:00 Case study: Lima
Presentation: Mário Zolezzi, DESCO (Peru)
Commentary: Otávio A. de Brito, FUNDEP (Belo Horizonte)

11:30 Case study: Mexico
Presentation: Margarita Nolasco, CECODES (Mexico)
Commentary: Nicolo Gligo, CEPAL/UNEP

15:00 Case study: Santiago
Presentation: Guillermo Geisse, CIPMA (Chile)
Commentary: Hélène Lamicq, IUP (France)

17:30 Meeting of working groups

General conclusions	- Carlos Collantes
Integrated development and environment	- Hélène Lamicq
Housing and land use	- Mário Zolezzi
Transport and energy	- Carlos Ceneviva
Community participation	- Celso Bredariol

Thursday 19 November

08:00 Meeting of working groups (continued)

14:00 Report on general conclusions

15:00 Report on integrated development and environment

16:00 Report on housing and land use

17:00 Report on community participation

17:30 Report on transport and energy

18:00 Lecture: "Family income, urban transport policies and socioeconomic justification of metropolitan railways"
Ian Thomson, CEPAL

19:30 Closing session and cocktail
Cassio Taniguchi, IPPUC
Nicolo Gligo, CEPAL/UNEP

Annex 3

DOCUMENTS PRESENTED AT THE SEMINAR

Symbol 1/	Author	Organization	Title
E/CEPAL/ PROY.6/R.26	Guillermo Geisse Francisco Sabatini	Consultores	Pobreza urbana y medio ambiente: Orientaciones metodológicas
E/CEPAL/ PROY.6/R.27	Beatriz Aguirre, Francisco Sabatini, Guillermo Geisse, Ethel Goldbaum, M. Teresa Lladser, Joan Mac Donald	Centro de Investigación y Planif. del Medio Ambiente (CIPMA)	Discusión sobre políticas de desarrollo en las áreas de asentamiento precario de Santiago
E/CEPAL/ PROY.6/R.28	Julio Calderón, Romeo Grompone, Luis Olivera, Mário Zolezzi	Centro de Estudios y Promoción del Desarrollo (DESCO)	Lima: Estilo de crecimiento, segregación social y posibilidades de una política alternativa
E/CEPAL/ PROY.6/R.29	Ian Thomson	CEPAL	Estudio preliminar de la relación existente entre el ingreso familiar, las condiciones de viaje y la política de transporte urbano en América Latina
E/CEPAL/ PROY.6/R.30	Margarita Nolasco, Iván Restrepo, Antonio Dovalí	Centro de Ecodesarrollo (CECODES)	Políticas de desarrollo metropolitano en la Ciudad de México
E/CEPAL/ PROY.6/R.31	Eduaro Neira Alva	CEPAL	Las políticas metropolitanas en un contexto de experiencia global
E/CEPAL/ PROY.6/R.32	Resumen de Alberto Urdaneta	Centro de Estudios del Desarrollo (CENDES)	Alternativas de la ciudad de Caracas para el año 2000

1/ All the documents for this Seminar were prepared under the CEPAL/UNEP Project on Horizontal Co-operation in Latin America on Styles of Development and Environment.

Reference documents

Author	Organization	Title
	Secretaría de Asentamientos Humanos y Obras Públicas de México (SAHOP)	El estado de los asentamientos humanos en América Latina y el Caribe (documents presented by the Executive Secretariat of CEPAL to the Latin American Conference on Human Settlements (7-10 November 1979))
	Instituto de Pesquisa e Planejamento Urbano de Curitiba (IPPUC)	Contribuição para a definição de uma política de desenvolvimento para a região metropolitana de Curitiba
	IPPUC	Cidade de Curitiba - Sistema de transportes
Osvaldo Sunkel	CEPAL	La dimensión ambiental en los estilos de desarrollo de América Latina (E/CEPAL/G.1143)
	CEPAL	Algunos aspectos de la justificación socioeconómica de los ferrocarriles metropolitanos en América del Sur (E/CEPAL/R.264)
	Associação Brasileira de Engenharia Sanitária (ABES)	Proteção de mananciais da região metropolitana de São Paulo