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**REPORT OF THE REGIONAL SEMINAR ON
NATURAL AND CULTURAL HERITAGE INVENTORIES AND ACCOUNTS:
PROGRESS AND PROSPECTS IN LATIN AMERICA AND THE CARIBBEAN**

(Santiago, Chile, 26-28 March 1990)

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Foreword

1. This report presents relevant background information as well as a summary of the discussions which took place at the Regional Seminar on Natural and Cultural Heritage Inventories and Accounts: Progress and Prospects in Latin America and the Caribbean.
2. The seminar was organized by ECLAC through the Joint ECLAC/UNEP Development and Environment Unit.
3. This regional seminar was conducted as part of the project entitled "Natural and Cultural Environments within National Accounts and Inventories", which was executed by ECLAC through the Joint ECLAC/UNEP Development and Environment Unit with funding from the Federal Ministry for Economic Co-operation (BMZ) of the Federal Republic of Germany.

I. BACKGROUND AND OBJECTIVES

4. From 1 January 1988 to 31 May 1990 ECLAC, through the Joint ECLAC/UNEP Development and Environment Unit, carried out a project entitled "Natural and Cultural Environments within National Accounts and Inventories". The aim of the project was to contribute to the establishment of heritage accounting programmes by classifying methodologies for use in such programmes and analysing the prospects for their implementation in Latin America and the Caribbean.

5. The structure of the project was as follows: firstly, a series of conceptual studies concerning the current state of the art, theoretical constraints stemming from the interrelationship between economics and ecology, and proposed theories regarding economic/environmental indicators; secondly, a series of case studies on specific areas; and thirdly, the organization and execution of the regional seminar and the subsequent preparation of this report.

6. The seminar's objectives were the following:

a) To provide a presentation on the state of the art in this field at the worldwide level.

b) To present methodologies for classifying and ranking the natural resources to be included in heritage accounts and to provide examples of heritage valuation and accounting methods as well as of losses occasioned by the systems currently in use. These presentations were to be based on three case studies concerning the Magallanes region of Chile; a zone of Andean/Patagonian woodlands in the Province of Río Negro, Argentina; and the Chichinautzin biological corridor in the State of Morelos, Mexico.

c) To discuss the conflicts which arise in respect of economic valuation, the political economy and economic/environmental indicators in heritage accounts.

d) To provide information about geographic information systems which can serve as a useful tool for the management of the data base needed for the preparation of natural and cultural heritage accounts.

e) To report on the prospects for the implementation of natural and cultural heritage accounting in Latin America and the Caribbean, to foster an exchange of information at the regional level, and to promote the preparation of such accounts in the countries of the region.

II. ATTENDANCE AND ORGANIZATION OF THE WORK

Place, date and attendance */

7. The Regional Seminar on Natural and Cultural Heritage Inventories and Accounts: Progress and Prospects in Latin America and the Caribbean was held from 26 to 28 March 1990 at ECLAC headquarters in Santiago, Chile.

8. The seminar was attended by 47 experts from Argentina, Chile, Colombia, Mexico, Nicaragua, Peru, Spain and Venezuela and by representatives of the United Nations Development Programme (UNDP), the Food and Agriculture Organization of the United Nations (FAO), the Organization of American States (OAS), the Tropical Agricultural Research and Training Center (CATIE) and representatives of official agencies of a number of the countries in the region.

Opening session

9. The opening session was addressed by Mr. Gert Rosenthal, Executive Secretary of ECLAC, who welcomed the participants and underscored the importance of the subject for Latin America and the Caribbean, and by Mr. Adolf Ederer, the Commercial Attaché of the Embassy of the Federal Republic of Germany in Chile, who drew attention to the close ties of co-operation existing between ECLAC and his Government in the area of environmental research and to his Government's growing concern about the environment as a factor essential to a balanced and sustainable form of development in the countries of the region.

Co-ordination

10. The discussions which took place during the three-day seminar were moderated by Mr. Nicolo Gligo, Co-ordinator of the Joint ECLAC/UNEP Development and Environment Unit.

*/ See the list of participants in annex 1.

Organization of the seminar

11. The seminar was structured around the presentation of papers on the various subjects included in the agenda. The presentation of each paper --some of which concerned case studies while others were of a more general nature-- was followed by a discussion period during which doubts were clarified and alternatives were proposed. During the afternoon of the final day, a closing session was held at which conclusions were drawn and a summation was made of the main points covered during the seminar.

Agenda */

12. The seminar focused on the following topics:

1. State-of-the-art methodologies for natural heritage accounts.
2. A methodology for a natural heritage accounts programme for the Magallanes region in Chile.
3. A baseline study and methodology for preparing cultural heritage accounts for the Magallanes region in Chile.
4. The political economy of natural heritage accounts.
5. Economic/environmental indicators for use in national accounts.
6. Natural heritage accounts in Argentina.
7. An analysis of economic appraisals in respect of natural heritage accounts in France, the United Republic of Tanzania and Indonesia.
8. Advances in geographic information systems for the compilation of data on the environment and natural resources.
9. Natural heritage accounts for the Chichinautzin biological corridor in the State of Morelos, Mexico.
10. Natural heritage accounts as a tool of environmentally sustainable development in Latin America.

*/ See the list of documents in annex 2.

III. SUMMARY OF THE DISCUSSIONS

State-of-the-art methodologies for natural heritage accounts (agenda item 1)

13. In the presentation given on this subject reference was first made to the current debate concerning the possibility of incorporating natural resource heritage accounts into the existing System of National Accounts. Thus far, natural resources had been regarded as free goods (many of which were undervalued or were not assigned any price at all) and the proceeds from the sale and use of such resources were recorded in national accounts as income, with no entry being made to reflect their deterioration or depreciation. Despite this failing, it was quite unlikely that the environmental dimension would be incorporated into the revised version of the System of National Accounts to be published by the United Nations in 1992.

14. The use of satellite accounts to provide additional information to planners, politicians and decision-makers appeared to offer the best possibility of broadening the framework of national accounts. Such satellite accounts should include a physical account and, if possible, a monetary valuation account; the two accounts should be closely linked and relatable to national accounts. The physical account should classify resource stocks and should incorporate data on the reproduction, regeneration, exploitation and deterioration of the resources in question. The monetary accounts should quantify such gains and losses on the basis of market prices, shadow prices or other means.

15. The most commonly used methodology was based on the following steps: description, classification, ranking, physical and monetary accounting, and a determination of the relationship between heritage and national accounts.

16. A number of highly interesting experiments had been conducted around the world. On the one hand, satellite accounts concerning environmental deterioration had been set up in the Federal Republic of Germany, while on the other, efforts to keep accounts of resources and their uses had been made in Norway and France.

17. It was clear that for developing countries, as illustrated by the case of Indonesia, accounts concerning resource use,

deterioration and exploitation were of primary importance, since those elements played a fundamental role in their economies.

18. Finally, an overview was given of the debate currently taking place with regard to the theoretical aspects of heritage accounts in order to provide the participants with an idea of its scope and of the different positions taken on the subject.

The political economy of natural heritage accounts and economic/environmental indicators for use in national accounts (agenda items 4 and 5)

19. The presentation made on these topics included an analysis, from the standpoint of political economy, of the problem of measuring physical inventories of natural resources in monetary terms.

20. The purpose of keeping national accounts was to record the movement of goods and services in a country or region over a given time span as a reflection of the prevailing system of production. Monetary units represented the generally-agreed and objectivized means of placing a value on the goods so exchanged, even when that objectivization did not correspond to the diverse use values of those same goods.

21. The problem was even more complex in the case of natural resources. The structuring of an account required the use of a common unit of measurement, and that unit had to refer to one or more characteristics of the natural resource. The fact that the resource also had a social use value, since it could be used to satisfy social needs, demanded the use of a more complicated mechanism for its physical evaluation because the unit of measurement "eliminated" the characteristics of social use or use value.

22. In order to construct accounts which measured the natural heritage in monetary terms, the physical unit of measurement could not be such as to suppress the real use values of that heritage. Moreover, money-based calculations for natural heritage accounts also disregarded the specific qualities of a resource which had a bearing on the satisfaction of social needs. The solution therefore appeared to lie in using relative appraisals of their various qualities or, in economic terms, having recourse to a scheme of relative accounting prices.

23. In view of the foregoing considerations, attention had shifted to the ability of money to measure the essence of value and how it related to exchange values and to prices. If natural substances were to be appraised on the basis of their capacity to satisfy social needs, then the first step in designing natural heritage accounts was to determine what exactly money (as a unit of

measurement) was measuring and what the relationships were between that "value" and the social characteristics of the natural resources in question.

24. The goal of sustainable development, which was implicit in the concept of heritage accounts, highlighted the relationships existing between changes in the qualities of usable objects (changes which corresponded to environmental deterioration) and the valuation process associated with the capitalist system of production.

25. The valuation process --i.e., the appropriation of natural potentials-- transformed natural resources into objects which had use values, and those values then became subject to periodic flows. Such flows were recorded in national accounts, but any environmental deterioration occasioned by production processes and consumption was not included --except to a minimal degree-- in those economic calculations.

26. In order to incorporate the environmental dimension, a distinction must be drawn between quantitative environmental deterioration, which affected the use levels of such resources as basic raw materials, and qualitative deterioration or alterations which could not be expressed as differentials (as in the case of pollution).

27. In view of those factors, the construction of environmental/economic indicators required the incorporation of the following elements:

- a) The socio-institutional context in which the environmental deterioration had occurred, so that the dynamic relationships between production processes and the socio-environmental situation might be identified; and
- b) The possibility of quantifying the correlation between processes of environmental deterioration and processes of production and consumption at different levels (regional, national, etc.).

28. Obviously, the unit of measurement used must be comparable and compatible with that employed in national accounts in order to permit the incorporation of such indicators. In their turn, those indicators also had to meet the requirements of spatial and temporal comparability.

29. Consequently, it was essential that environmental policy should make use of such indicators as tools for the implementation of environmentally sound patterns of production/valuation in respect of natural resource use.

An analysis of economic appraisals in respect of natural heritage accounts in France, the United Republic of Tanzania and Indonesia (agenda item 7)

30. The presentation given on this topic focused on the description of methodologies for assigning monetary values to the components of the natural heritage for use in the preparation of economic accounts or the construction of modified macroeconomic indicators.

31. Since no consensus regarding methods of appraisal had yet been reached at either the theoretical or practical levels, it had been decided that this topic would be addressed on the basis of a review of case studies in which, despite the difficulties and limitations involved, attempts had been made to apply a valuation methodology that would permit the preparation of satisfactory heritage accounts. The case studies chosen for that purpose concerned the work being done in France, Indonesia and the United Republic of Tanzania. Those cases had been selected because they represented three different approaches to the same problem.

32. France's experience was the result of a number of years of work aimed at setting up a genuine statistical system. The work had begun with the compilation of disaggregated data and had then proceeded through various stages until reaching the point where those data and other physical information could be integrated with economic data, thus permitting the construction of satellite accounts and of macroeconomic indicators of well-being. Under this system, four exercises in economic measurement had been conducted, two of them being based on a microeconomic approach and two on a macroeconomic approach. The first two had focused on the valuation of an artificial timber forest and of oil and natural gas reserves, while the macroeconomic exercises had concerned land valuation and the preparation of accounts on inland bodies of water.

33. The projects carried out in Indonesia and the United Republic of Tanzania had not attempted to develop an entire accounting system but had instead concentrated on arriving at figures which could then be used to adjust national accounts.

34. In the United Republic of Tanzania, the damage caused to a forest by the cutting of firewood was assessed by estimating the cost of the labour needed to collect the firewood that had been consumed, and the net deterioration figure was then used to rectify the national accounts. In Indonesia, the value of forestry resources and of oil reserves was calculated over a period of several years; due to time and funding limitations, the procedure employed in this case was the net price method previously proposed by other authors for use in respect of non-renewable resources. An entry corresponding to the loss of soil resources was also added. This resource loss was calculated as equivalent to the decrease in farmland productivity.

35. The sum of the figures on the deterioration of those three resources was used to correct the figures for the gross product and domestic investment during the period 1970-1984. The result demonstrated that the growth rate had been almost one-half that indicated by official figures.

Advances in geographic information systems for the compilation of data on the environment and natural resources (agenda item 8)

36. A geographic information system (GIS) was a tool which permitted the computerized compilation, organization, storage, retrieval and display of information at a sectoral or overall level. Geographic information systems were currently being applied in the following fields: digital mapping; natural resource inventories, development and management; urban, rural, regional and national planning; the simulation and assessment of ecological, economic and social processes; and land surveying.

37. Geographic information systems offered numerous advantages when a large volume of detailed information had to be aggregated and geographically referenced. Such systems permitted better spatial organization, reduced processing costs, minimized information-retrieval times and made it possible to mix data so as to produce maps and other similar designs. Furthermore, their data bases were flexible enough to incorporate additional data, according to the needs of the user, as additional information became available.

38. The presentation also included a detailed description of the basic components of a geographic information system, the relevant programmes and their specific uses for processing spatial data into digital data.

39. Finally, various examples of GIS applications were given in order to illustrate the variety of uses and possibilities they offered in connection with heritage accounts.

A methodology for a natural heritage accounts programme for the Magallanes region in Chile (agenda item 2)

40. The presentation of this case study began with an overall baseline analysis of the physical and socio-economic conditions existing in the region. The main characteristics cited were: the extremely isolated nature of the region due to its peculiar orography and vast network of canals and to its severe climatic conditions, which included low temperatures and strong polar winds; its highland scrub-forest and steppe vegetation; its low population density and the concentration of what inhabitants there were in a few areas; its wealth of natural resources such as oil and natural gas, forests and fisheries; its well-developed stock-raising

activity; and its severely limited agriculture due to climatic factors.

41. In view of the fact that the region covered an area of 132 000 km², the study had concentrated on devising an accounting methodology for use in the region rather than attempting to arrive at calculations for physical and economic natural heritage accounts.

42. The methodological proposal was based on the following postulates:

- a) The method to be used had to be suited to the local situation, with a balance being sought between theoretical needs and practical problems;
- b) Use had to be made of the existing information available from scientific research projects and official statistics; and
- c) The methodology's practical application would have to be accomplished within a period of one year.

43. Using those requirements as a starting point, the following basic concepts were formulated:

- a) Natural goods not only had value as productive and economic resources available to man, but also had an ecosystemic value and values which they acquired by virtue of the human dimension in the form of customs, aptitudes, traditions, etc. Naturally, one of those values might predominate over the others;
- b) Therefore, the "main" value had to be identified on the basis of local characteristics; and
- c) The degree to which resources were endangered or threatened should be used as a criterion in selecting the natural goods to be included in the accounts.

44. It was therefore decided that the selection of goods for inclusion in heritage accounts would be based on the identification of their predominating value and the degree to which they were threatened or endangered, while bearing in mind the properties of the region. Once the methodology to be used in identifying the region's priority goods and resources had been clearly outlined, a physical inventory system was designed for those resources which generated the region's gross domestic product: energy resources, forestry and fishery resources, wildlife, minerals and soils.

45. The next step had been to find a method for assigning an economic value to those inventories. In view of the fact that, apart from their economic value, resources also had a socio-cultural and ecological value, the following scheme was proposed:

- a) The preparation of a cost/benefit analysis for use in designing the account;
- b) The assignment of prices which would reflect the various components of the resource's "value"; and
- c) The establishment of an integrated system of accounts.

46. The discussion centered on the possibility of using monetary measurements for characteristics which satisfied human needs but did not figure in market transactions. Another point considered was the political usefulness, in terms of centre-periphery negotiations, of using a similar methodology to prepare territorial accounts.

47. It became clear that the use of such a system for that purpose would pose practical difficulties in connection with the ongoing monitoring that would be required on a national scale, and the methodology would therefore have to be modified to permit the successive aggregations that would be necessary in order to apply it at the national level.

A baseline study and methodology for preparing cultural heritage accounts for the Magallanes region in Chile (agenda item 3)

48. The presentation concerned a methodological model --as applied, for purposes of illustration, in the Magallanes region-- for surveying, describing and classifying an area's cultural heritage. It was noted that an economic valuation of such resources was impossible since they were intangible goods.

49. The proposed methodology was based on an evolutionary historical approach whereby an effort was made to determine the genesis of cultural manifestations and the order in which they had appeared.

50. The proposed classification included the following categories, which also tied in with a calendar of major historical events in the region: archeological heritage; rural and urban architectural heritage; zones and natural landscapes of special interest; arts and crafts; noteworthy objects and collections; traditional folk cultures; and contemporary cultures.

Natural heritage accounts in Argentina (agenda item 6)

51. The panel on this subject presented an integrated approach to the analysis and application of a methodology for preparing heritage accounts. The objective was to appraise not only resources but also ecosystemic interrelationships and other elements commonly regarded as intangibles so as to include all natural elements and conditions capable of satisfying human needs.

52. The calculations were prospective in nature and did not refer to any single year. Provision was made for the incorporation of an annual adjustment to be made on a theoretical basis and an empirically-based adjustment which would be carried out once every ten years; the adjustments would reflect possible changes in demand, in technology and in the characteristics of the ecosystem itself. The scheme also provided for the enhancement of the existing carrying capacity of the ecosystem, taking into account its potential and the necessary modifications. Consideration was given to the preparation of a physical account and a monetary one, both of which would be relatable to existing inventory and accounting systems.

53. The case study on the subject was based on an analysis of Andean/Patagonian woodlands, their various uses and their management (i.e., production, replenishment and maintenance).

54. The methodology that was used involved the estimation of the initial inventory of the resource, taking into consideration its productive and ecosystemic functions. Its subsequent valuation was based on an estimate of the cost of maintaining its ecosystemic function and improving its productive function. With respect to the former, the costs of improving and protecting the trees, the wildlife and the ecosystem's genetic diversity and potential were taken into account. In the case of the latter, consideration was given to the costs of improving the hydroelectric, drinking-water and roadway infrastructures, the productive capacity of farmland and other indirect benefits.

55. Monetary values were determined by identifying the necessary operations and then calculating the time unit required for each activity per year, thereby converting it into a standard unit of man/days per hectare. The most interesting aspect of the study was its use of alternative means of assigning values to ecosystemic relationships with a view to the valuation of the area's natural heritage.

56. The results of the above procedure were used to simulate two future scenarios, each based on a different rate of tree felling (one which would ultimately deplete the resource and one which was designed to conserve it), in order to learn more about the resource's response to different use intensities.

Natural heritage accounts for the Chichinautzin biological corridor in the State of Morelos, Mexico (agenda item 9)

57. The presentation of the case study on the Chichinautzin biological corridor in the north-western portion of the State of Morelos focused on an exercise in accounting and economic valuation in respect of the use of the zone's natural resources for development purposes.

58. A description was given of the Chichinautzin biological corridor, with special emphasis on its ecological and economic importance. From an ecological standpoint, in addition to providing a habitat for many varieties and species of flora and fauna, it served as a buffer zone for the natural recycling of air and as a physical barrier between Mexico City and Cuernavaca, both of which were areas of rapid demographic and industrial growth. From an economic standpoint, the protected corridor played an extremely important role in replenishing the aquifers for a large part of the State of Morelos and as a productive zone in terms of agricultural, forestry and gathering activities.

59. The methodology applied in respect of the Chichinautzin corridor was as follows:

- a) An inventory of the corridor's natural resources;
- b) An analysis of resource use;
- c) An economic appraisal of the environmental costs of such use;
- d) The preparation of a production balance sheet of income and environmental costs;
- e) The preparation of a balance sheet on the deterioration of physical stocks; and
- f) The preparation of two projections, one based on an extrapolation of existing trends and the other based on the assumption that current trends would be re-directed towards a more environmentally sustainable form of use in terms of local conditions.

60. The economic valuation of the selected resources was made using the market prices for the year in question, which were used to determine the resource replacement cost. In other words, no attempt was made to set a value on the heritage itself, along with all its ecological, economic and socio-cultural functions, but only on those annual flows that could be expressed in market prices.

61. A comparison of the economic income from agricultural, forestry and gathering activities with the associated environmental costs showed that the former was invariably greater than the latter. However, although in 1970 the environmental cost per unit of output was only 14%, by 1980 it had risen significantly (35.5%), and projections indicated that it would be over 40% by the year 2000.

62. Consequently, if present use systems remained unaltered, environmental deterioration in the corridor would increase, causing a drop in productivity and giving rise to an unsustainable form of development.

63. Some of the advantages of the above-mentioned methodology were as follows:

- a) It permitted a combined analysis of environmental and economic variables which could be expressed in the form of physical and monetary statistics;
- b) Use was made of the same types of economic statistics as those customarily employed in the traditional sort of physical resource inventories; and
- c) Thanks to the above features, it appeared to make it feasible to incorporate heritage data into national accounts, thereby modifying them accordingly, or to construct relatable satellite accounts.

Natural heritage accounts as a tool of environmentally sustainable development in Latin America (agenda item 10): general discussion

64. In introducing the subject, the presenter summed up the main lessons which had been learned during the course of the project. Emphasis was placed on the need to make use of that tool in all cases where policies explicitly designed to promote an environmentally sustainable form of development had been adopted.

65. Generally speaking, in Latin America a lower funding priority was assigned to the evaluation of natural resources than to social problems.

66. Resource classifications should be in keeping with a region's own priorities and needs; overall environmental importance or market significance should not necessarily be regarded as the overriding consideration, since otherwise too low a value might be placed on a region's customs, needs and aptitudes.

67. A proper scheme for modifying the existing national accounting system could be designed either from the top down or from the bottom up so as to be compatible with local views.

68. In order to set up natural and cultural heritage accounts, the first step, after compiling a good data base, was to prepare physical accounts and then to determine their value and carry out the accounting computations corresponding to the components of that heritage, since without physical accounts it was impossible to prepare economic accounts or resource balance sheets.

69. The preparation of physical accounts required the definition of a series of resource descriptors, physical measurements and timetables, as well as a geographic information system for data processing, location and management.

70. A more complex resource evaluation called for the use of economic, ecological and socio-cultural criteria which would reflect the fact that, although not all the resources in question were tangible, they nonetheless had a role to play not only in the national economy but also in the ecology, society and culture.

71. Whatever the type of resource analysis being carried out, the first step was to evaluate all the resources in the zone, ascertain their uses, and rank them on the basis of economic, ecological and socio-cultural criteria. Such a methodology would make it possible to determine which resources it was most important to incorporate into the accounting system, while also providing enough leeway so that later on other lower-priority resources could be added so as to take their dynamics into account as well.

72. The valuation of resources had to be based not only on market prices but also on estimated values incorporating ecological and socio-cultural considerations, which might be based on replacement, conservation or maintenance costs. No catalogue of formulas or list of possible means of estimating such values had yet been drawn up; consequently, in each case the valuation formula had to be defined, and researchers therefore had a great deal of latitude in devising indirect, alternative methods of resource evaluation and appraisal.

73. Furthermore, it was necessary to acknowledge that not all resources were tangible and to accept the fact that in some cases their importance would have to be stressed by descriptive means alone.

74. With respect to the question as to whether or not the heritage accounts discussed at the meeting should be incorporated into national accounts, the view was expressed that in Latin America it would be preferable to recommend the use of satellite accounts. Income entries in such satellite accounts would be adjusted for environmental costs and, in time, they would come to be seen as a very important tool for the achievement of sustained development. Another major consideration was the undesirability, from a policy standpoint, of making such sweeping changes in national accounts as would be entailed by the incorporation of new criteria, since they would disrupt the data series for those accounts.

75. Each country or region should develop its own methodology in accordance with its most pressing needs and priorities. Zones suffering from severe environmental deterioration should be the first to proceed with the preparation of heritage accounts. It was important to realize that the construction of an account involved more than just the transcription of an established classification or the use of a piecemeal environmental inventory; it required the collection of information on stocks, flows and ecosystemic relationships and the estimation of degrees of deterioration and depredation as well as of self-restoral capacity, use and conservation levels.

76. Heritage accounts could serve as a useful tool for negotiating reinvestments in the region having regard to the tapping of its resources or the provision of environmental waste-disposal services designed to sustain key ecosystemic functions.

77. The valuation of ecological processes and socio-cultural services could not be based solely on the concept of stocks.

78. Environmental accounting should be regarded as an additional tool which could be used in conjunction with cost/benefit analyses and environmental impact studies to contribute to the planning of an environmentally sustainable form of development.

Annex 1

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Annex 2

DOCUMENTS PRESENTED AT THE SEMINAR

- LC/R.873 Cecilia Suárez, "Las cuentas del patrimonio natural en Argentina".
- LC/R.874 Sergio Andrade, "Bibliografía para la elaboración metodológica de cuentas del patrimonio natural de la región de Magallanes, Chile".
- LC/R.875 Julia Carabias, David Montaña and Fuensanta Rodríguez, "Cuentas del patrimonio natural del corredor biológico del Chichinautzin, Estado de Morelos, México".
- LC/R.876 Pedro Tsakoumagkos, "Indicadores económico-ambientales para las cuentas nacionales".
- LC/R.877 Pedro Tsakoumagkos, "Economía política de las cuentas del patrimonio natural".
- LC/R.878 Alfredo Prieto, "Diagnóstico y metodología para la contabilidad del patrimonio cultural de la región de Magallanes, Chile".
- LC/R.880 Ana Christine Walschburger, "El estado del arte en metodologías de cuentas del patrimonio natural".
- LC/R.881 Daslac Ursic, "Metodología para un programa de cuentas del patrimonio natural de la región de Magallanes, Chile".
- LC/R.887 José Luis Borcosque, "Sistemas de información geográfica (SIG). Conceptos, estructuras y aplicaciones en la captación, proceso y análisis de datos sobre ambiente y recursos naturales".