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Prototypes for Textbooks and Guidebooks for Environmental Education Teachers of Primary and Secondary Levels of the Basic Formal Education System of Iberoamerica*

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I. Background

1. This document is the result of Item 11 of the Final Declaration of the Second Iberoamerican Forum of Ministers of the Environment, held in Bávaro, Dominican Republic, June 11-13, 2002, within the framework of cooperation among the countries of Iberoamerica. An integral proposal for textbooks for the formal education system was requested of the Iberoamerican Cooperation Secretariat (SECIB) and the UNEP Environmental Training Network for Latin America and the Caribbean; the proposal would envision the dissemination of environmental education at the preschool, primary and secondary levels of education. To comply with this request, an agreement was signed by UNEP and SECIB, in which it was agreed that a Project for the Production of Environmental Education Textbooks for the Basic School System (preschool, primary and secondary) would be implemented. To carry out this task, the initial undertaking was to identify and compile existing material on environmental education. The result of this consultation was a systematic analysis of existing materials and the use of success stories in environmental education, which was presented at the Third Iberoamerican Forum of Ministers of the Environment, held in Oaxaca, Mexico, October 20-22, 2003.

2. As a result of this presentation, it was agreed that the UNEP presentation for the design of a prototype environmental education textbooks for the basic school system (preschool, primary and secondary levels), as well as the corresponding teacher's guides, through which experiences and contributions in the subject already in existence in Iberoamerica would be accepted. These textbook prototypes would be promoted by the Iberoamerican Cooperation Secretariat (SECIB) and the Ministers of the Environment, together with the Ministers of Education of the Region, to promote the incorporation of environmental education and sustainable development into educational and environmental policy in the countries of the region, and as a process within the Decade for Education for Sustainable Development.

II. Introduction

3. This document offers the basic general guidelines needed to undertake the task of designing environmental education textbooks for the basic school system (preschool, primary and secondary levels) of the countries of the region.

4. The importance of including environmental education in the early stages of life lies in dealing with the needed changes in mindset and the possibility of prompting cultural transformations that in turn might lead to a new life ethics, thus paving the way for the construction of sustainable societies.

5. In 1972, the World Conference on the Human Environment stated in Principle 19 of its Declaration:

“Education in environmental matters, for the younger generation as well as adults, giving due consideration to the underprivileged, is essential in order to broaden the basis for an enlightened opinion and responsible conduct by individuals, enterprises and communities in protecting and improving the environment in its full human dimension...”

6. In truth, education constitutes the only space where the environmental dimension lends new meaning to the processes of shaping the individual through the transformation of educational concepts and practices.

7. While it is true that recently environmental content has been incorporated in educational syllabus at different levels, there has been insufficient training of teachers, and a lack of pedagogical proposals to handle this content. In this regard, it becomes of the essence to set down political guidelines, proposals and actions to handle this quandary.

8. Although programs related to the environmental dimension have been developed for the education of children, we find ourselves facing a field that requires design and development, but most of all contextualization and regional scrutiny.

9. There are various efforts that have been implemented in the countries of the region to incorporate the environmental dimension in the education of children and adolescents. Nonetheless, when analyzing these efforts, we note the following: ranging from the duration of the programs, the focus of their content, the epistemological treatment accorded to this content, the methodological and pedagogical positions, the type of materials and their quality, all lead us to the conclusion that there is no sense unity in the projects, but rather a vast array of diverse projects.

10. These educational projects, nevertheless, have not attained sufficient strength in any regard to be envisaged as a possibility for the future. Having said this, material conditions –both ecosystems and socio-ecosystems– make the commitment to take environmental action inescapable in the diverse arenas of human action, particularly concerning programs addressing environmental training for new generations.

11. In fact, education comprises a space wherein the environmental dimension can provide new meaning to training processes for the individual through the transformation of educational concepts and practices.

12. For this project, we start from the notion of environmental education being preparation to understand a world undergoing transformation, and from the need for new generations to conscientiously and actively shoulder the construction of sustainable future.

13. We are therefore, facing a time when it is necessary to bring together all these efforts and expand the duration of the programs, the focus of the content, the

epistemological treatment accorded to this content, the methodological and pedagogical positions, and the type of materials and their quality, and incorporate these trends and work already developed into environmental education for the region.

14. Most of the proposals have managed to expand the informative aspect of Environmental Education, without, however, achieving a transcendental model that truly embodies the concept: the relationship between development and the environment, ethics, human behavior and sustainability.

III. Justification

15. It is important to underscore that over the last 20 years there has been an abundance of materials produced, of great diversity, and with great effort, whose contributions have not fully penetrated the surface of policy or basic education programs in the countries of the region. Despite numerous experiences and innumerable didactic proposals and methodologies, it has not been easy for environmental or educational authorities to apply them during these past 20 years.

16. Therefore, there is a significant amount of textbook material on the environment that addresses both students and teachers of basic education in the region, with multiple conceptual and pedagogical points of view representing an array of visions and achievements that stand out, offering a set of approaches to the theme from diverse perspectives, countries and regions.

17. This fact expresses the patent interest of the countries, from both governments and non-governmental organizations, to make strides toward improved environmental education.

18. The content of the aforementioned materials is not always in keeping with the environmental education policies proposed by the Ministries of the Environment and Education of the governments. While the texts available do express a multiple set of options that are rich in alternatives proposed by the public and private sectors, there has not been thus far appropriate coordination among them.

19. The efforts that these materials and their application represent have not been exploited in an attempt to provide clear direction for environmental education processes in the countries and in the region; for this reason, most of them have been employed and applied only in limited processes, and their application at the various levels of formal education have been scarce.

20. The positive experiences described in some of the documents can become the strategic guidelines and basis to strengthen environmental education in the many countries of the region.

21. The possibility of exploiting the experiences undertaken until now –albeit with positive or negative results– paves the way for forging ahead in future processes in environmental education, taking on the lessons learned and articulating the constructive lines of the work undertaken.

22. Examples of participation that exist in several of the countries offer an option to develop spaces where students and their teachers, in addition to other sectors, can contribute through innovative initiatives and proposals to environmental education at the basic levels.

23. When considering the foregoing, one might conclude that there is a great need to increase and improve coordination at the national and regional levels to arrive at broader and more consistent processes, based on deepening both the options of conceptual management as well as the pedagogical alternatives and proposals for actions.

IV. Objectives

- a) To design environmental education textbook prototypes, as well as teachers' guides, to attain comprehensive education and encourage the shaping of human beings who are capable of identifying their needs, propose possible paths to satisfy these needs and build a life project geared toward sustainability.
- b) Promote environmental education for the development of critical and creative thinking in such a manner so that human beings may have clear concepts on the universe, life, awareness and mankind.
- c) Start from the basis of the everyday lives of students, not to copy it but rather to analyze and understand it and seek solutions to problems.
- d) Suggest in the texts and guides the idea of humankind as being active and capable of bringing about transformation, humankind that is continually interested in processes as they relate to their needs, space and time.
- e) Propose activities for the creation of environs that foster and awaken interest in biological and cultural diversity.
- f) Recommend teaching styles that ultimately lead to research concerning reality, and propose in this manner an alternative methodology for schools.
- g) Solve problems pertaining to lack of knowledge by taking into consideration the potential of the participants.
- h) Emphasize to teachers their decisive role in directing and coordinating the work, eliciting questions, fostering research, organizing academic life, and installing models of cooperation.
- i) Promote activities in which offering help is not only possible but also required, with companionship and solidarity being one of the goals.

V. General Considerations

24. The content of the syllabus will be organized in an interdisciplinary manner, sharing viewpoints on theory, methodology and technical aspects, taking into account that the syllabus is an appropriate place to build an interdisciplinary field capable of generating:

- a) Epistemological and theoretic arguments related to conceptual and methodological processes.
- b) Pedagogical and psychological processes, and
- c) Socio-cultural arguments.

25. If we are to attain globalization and contextualization along with inter-discipline collaboration, concrete spaces must be set aside in the syllabus to select content and design strategies for interdisciplinary, globalized and contextualized work. This can be achieved through the selection of problematic, distributed, incorporated and articulated processes (not just added).

26. Didactic strategies cannot, then, become information processes; different forms of interaction are demanded in academic spaces, and they must be designed and managed.

27. Thus, though the content and methods proposed have been designed to be lines for reflection, it is imperative to go from criticism to knowledge, from substitution of knowledge conveyed to knowledge sought, to mind the careful action of the gears of the programs through collective design. There is difficulty in instituting programs that are coherent and well planned without falling into the mere juxtaposition of disciplines, noted in the development of textbooks, and avoid the practice of encyclopedic approaches.

VI. Procedure

27. The design of textbooks answers to this proposal:

- a) Conceptualization of the environmental dimension
- b) Definition of the epistemological, methodological and pedagogical position in the textbooks.
- c) Transfer of the foregoing into an educational project.
- d) Determination of educational profiles as regards age and school cycles.
- e) Definition of content and conceptual needs.
- f) Increase content in keeping with the psychogenetic development of the children.
- g) Design educational experiences that are applicable to regional diversity.
- h) Design and draft textbook prototypes. Transfer into appropriate language for children and young people.

VII. Structure

A. Concept of the environmental dimension

28. The concept of environment is dealt with as a system: a comprehensive vision of the relationship between society and nature and the implications of the interactions stemming from this relationship. It renders an account of the relationship between society and nature as a historic and cultural process. It stems from a concept that considers the environment to be a complex system in which the relationship between society and nature is studied from an integrating perspective and through the optic of articulating historic, ecological, cultural, ethical, economical and technological processes.

29. Environmental education, in the same vein, needs to build an integrating perspective through which it may establish the importance of working on a new mindset in science and knowledge, one espousing the importance of construction and creativity, one with a critical and innovative purpose. It is more about an interdisciplinary field playing a key role in the processes of understanding and improving the environment in the varied local, regional, national and international realities, one closely linked to processes to improve the quality of education as a whole.

The systematic view of environmental education places it as an open system of multiple dimensions, both social and natural, through which there is convergence and interaction of diverse social, political, ecological, cultural, economic, ethical and technological subsystems. All these aspects must be reflected in the educational material.

B. Thematic sequence

a) Spatiality:

- Global and local
- Urban and rural environments
- School: its socio-environmental surroundings and its historic-cultural context
- Potential environmental situations in concrete spaces (locality, protected areas, etc.)

b) Historic background

- Familiar
- Related to culture and local realities
- Traditional knowledge
- History of the locality
- Style of development
- Modes of production and consumption

c) Attitudes, behavior and values

- The attitudes and behavior of persons on an individual basis
- The responsibility of society as a whole
- The values of life in general

C. Definition of the epistemological, methodological and pedagogical position adopted in textbooks

30. Complex vision: creating awareness concerning relationships that have disintegrated through the separation of disciplines entails thinking in multidimensional terms, emerging properties, balance and possible actions, starting from the recognition of uncertainty in thinking about and understanding reality, trying to embrace the multiplicity of relationships that exist between entities and beings.

31. Crosscutting nature: aspects related to the crosscutting nature of the environment in the structure of the syllabus will be dealt with, as will the expansion of the educational space, active methods and participation, in addition to instruments to support the methodology.

32. We start from the premise that environmental education can become the central theme or crosscutting field in educational processes in school. They must be appropriately expressed, without becoming an additional burden for teachers and their work, and be designed to: a) guide the syllabus through strengthening the ethical shaping of the individual, b) direct the process of growth and self-affirmation, c) direct the manner in which one person relates to others and to the world, and d) contribute to the development of critical thinking and reflection, and proactive actions committed to the construction of a sustainable future.

33. In like manner, the shaping of persons whose values will elicit their involvement in the era of technology without detriment to their status of human beings, nor to their environment, persons capable of appreciating and respecting biological and cultural diversity.

34. Focus the crosscutting nature of the environment on all-encompassing problems or situations, analyzing them in a critical manner, or through research processes geared toward action, strengthening competencies and theoretical and practical standpoints.

35. Inter-disciplinarity: When imparting basic education, in general, the concept of subjects or areas of knowledge is managed. The division or presentation of these differs from country to country, but generally coincides in mathematics, language, science (natural and social), the arts and physical education; each with its own differentiated content.

36. The structure of a basic textbook syllabus will offer opportunities to develop capacities and build intellectual tools to act intelligently concerning the environment, seeking solutions to problems, from every area of learning, in an attempt to insert integrating elements in diverse disciplines, indicating the

appropriate timing and rationale in so doing, articulating rather than accumulating subjects.

37. Textbooks will be linked to general syllabus plans and will be explicit on the moments and shapes in which these “guest” disciplines will be incorporated into the topics. Teachers of these disciplines will take part in the overall task.

38. Systematic focus: the starting point will be to incorporate a systematic, holistic and all-encompassing view of environmental concepts, proposing activities that are broad in scope, while at the same time capable of analyzing components, and then going back to the overall view.

39. First and foremost, the materials must be based on the concept of the environment as a complex system, one that studies the relationship between society and nature from an integrating standpoint, articulating historic, ecological, cultural, ethical, economic and technological aspects.

40. Environmental education, in the same vein, demands an integrating perspective in which the importance of working with a new vision of science and knowledge is incorporated, one that is constructive and creative, with innovative and critical purpose. This is to be an interdisciplinary field that plays a key role in the processes of understanding and improving the environment at all levels of local, regional, national and international realities, while at the same time closely linked to the process of improving the quality of education as a whole.

41. The systematic view of environmental education makes it an open system, one of multiple social and natural dimensions where diverse social, political, ecological, cultural, economic, ethical and technological subsystems converge and interact. All of the foregoing must be reflected in educational materials.

42. Instruments to support methodology: these will primarily be provided in guidebooks that can be employed in active processes, such as structured questionnaires, tables for data processing, topics to be developed, analyses charts, etc. The instruments facilitate the incorporation of some teaching material and student material.

43. Guidebooks will be included to offer an opportunity to observe spaces to support a critical analysis of environmental issues.

D. Pedagogical point of view

44. Constructivism: the teacher is not at the heart of the process. His or her role is to encourage autonomy and creativity, as well as overall student participation, including decision-making processes. The issue of education is considered to be one of human relations, future prospects, social processes that are intrinsic to human beings, active participation, teaching based on the experiences and research of the selfsame students in their immediate surroundings as a starting point from which to subsequently expand into further realms. The foregoing is guided by the construction of knowledge, the starting point and its location as concerns the interests of students and the management of perception.

45. Educational materials on the environment demand that spaces be opened so that work can be carried out on local experiences, and on studies and approaches carried out by the students themselves, with the support of teachers, based on their own realities and the analysis of their own contexts so as to build the knowledge base creatively and critically.

46. Moreover, it is necessary to foster educational work that includes the historic perspective, that is, a picture of the processes that have taken place, ranging from the relations between society and nature at various moments in time.

47. In like manner, it is fundamental to center the material and educational action on an integrating, systematic basis so as to better understand the complexity of the relations between human beings and nature. All this, from the standpoint of a culture that will allow for the analysis of transformations carried out by society, the bonds with the organization of said society, and the influence and differences of diverse cultures and forms of cosmovision.

E. Translation to educational project

48. Environmental education and its materials demands an analysis that is not only local (the immediate context), but also encompasses regional, national, and international –or global– relations. The ties between the different levels of reality, their mutual influence, are a fundamental part of understanding the environment.

49. The methodologies to propose for the textbooks and other educational materials concerning education on the environment must be centered on participation and on the activity that students can develop creatively to deal with the complex nature of the matter in its own context. Initiative, the focus on reality, active and critical observation, a constructive posture to contribute elements to the analysis and solution of complex situations, are all a fundamental part of achieving active methodology, to be implemented not only in the classroom, but also in a more comprehensive framework that includes immediate surroundings –be they rural or urban–that transcend the mere analysis of both surrounding and distant contexts. We must ensure that our position in light of knowledge express openness to other forms of knowledge and know-how, while at the same time preparing an ethics encompassing others, with willingness and capacity to establish a dialogue on knowledge and know-how.

50. Expansion of the space for education: in the textbooks there are numerous proposals related to carrying out activities outside the classroom, in protected natural areas, in the community, through visits to farms and orchards, experiencing first-hand difficult situations and establishing communication with knowledgeable people that are related to the topics or aspects being studied.

51. Field trips are proposed with the goal in mind of students becoming observers of the world that surrounds them, of learning to take notes, collect and record data, and later synthesize said data; students will gain life-experience that is sensorial and aesthetic, and take these experiences as a basis for future proposals.

52. Didactic methods: Textbooks will center on proposing work through projects as a way of creating workspaces that demand a crosscutting mindset. They will

proffer alternatives for the development of converging actions that will incorporate global themes from a systematic, articulated perspective. The commitment to apply active methods in the educational process will be patent. Discussions, group debate, working with real situations, participatory solutions to problems recognized by students, etc., will all find a place in the textbooks. There are also several proposals concerning the application of participatory techniques, group dynamics, games and the creation of simulated scenarios.

53. Students will be requested to carry out complementary workshops.

54. Participatory processes: The use of materials that transcend the local educational community and population will be proposed to foster better public spaces, resulting from a diagnosis of the community environment, moving toward a concrete solution to problems and inserting this solution in a context offering greater opportunities for continuity.

55. Concerning the role of educators in the process: Educators will contribute elements of reflection and work with students to study environmental situations, indicating the need encourage independent and creative activities through guidance and support of teamwork, etc.

54. The changes that teachers will have to make to carry out this new –much more creative– focus will be emphasized, a focus that offers greater freedom for students, both individually and collectively. Guidelines and orientation will be established so as to appropriately direct debates toward the attainment of proactive, critical thinking.

F. Definition of educational profiles as concerns age and school cycles

55. Guidebooks for teachers will address themes per se, but more than that they center on the conceptual level, differentiating possible activities that can be undertaken at every step, underscoring their relationship to the developmental processes of children at varying ages and stages of psychogenetic development. The focus of programs (themes and activities) is established based on child development, thus offering alternatives to draw children closer to a holistic vision of the environment.

G. Educational profile

1. Shaping critical thinking

56. Environmental problems are dealt with in association to prevalent socio-economic models that offer sustainable development; aspects such as poverty, injustice and social discrimination are all taken into account, as are lifestyle, consumer patterns, etc. These issues lead to opening the door to pedagogical options that focus on training students in the use of critical thinking, the possibility of analyzing results in a critical spirit, studying deterioration and future problems, and learning to make strides toward real opportunities, both in the classroom and outside it, so as to discuss the historic, social, economic and cultural aspects that support these reflections.

2. Ethical and aesthetic training

57. There is consensus on all fronts of environmental education that shaping values is imperative. Values are shaped through everyday relationships that allow human beings to agree and disagree, differ and reach consensus, create and participate, etc. in an atmosphere of respect and democracy, understanding this to be the possibility of influencing the direction that tasks will take on in everyday life, building critical and creative thought and opening the door to collective work, which requires a commitment through philosophical, methodological and conceptual axioms, as well as the ethical and practical purposes of the program.

58. The construction of environmental values, the recovery of values, the recognition of biodiversity and cultural diversity as wealth belonging to the world all find their niche in the didactic proposals of the materials. The construction of identity and the recognition of that other are the foundations for building values based on harmonious cohabitation, solidarity and sustainability.

3. Training for action and participation

59. Prototypes for textbooks will focus on opening spaces so that students can become directly involved in the local management of the environment, for which it is necessary to work on concrete projects. In some cases, these proposals for action will be preceded by opportunities that come about through the projects. Hence the necessity of these experiences brings about changes in the structure of the school system and in education centers to attain the continuity of efforts and alternatives leading to participatory action –not only of the students but also of the entire educational community. Students will take part directly in for a dealing with conceptual themes and proposals that demand specific action.

4. Eliciting commitments and training social agents

60. Textbook prototypes will educate and train students for the construction of caring and responsible citizens that will take part democratically in political, economic and ecological decisions on sustainable development. For this purpose, textbooks must become the instrument that sharpens observation techniques and facilitate the identification of the interrelationship between the diverse elements of the locality, paving the way for possibilities to participate in the construction of a sustainable community. Following this same logic, there are proposals for participation in the conservation of natural protected areas and specific neighborhoods or ecosystems.

H. Determining content and conceptual needs

1. Concerning content

61. There are three dimensions entailed in the review of environmental relationships: a) the relationship of human beings with themselves; the relationship of human beings with other human beings (family, community, society) and the relationship of society to nature.

62. Environmental education must shape a theoretic and practical awareness, both as concerns the environment and its evolution over time and modification in space –an objective that is being achieved– as in the relationship to integral education and shaping. It must also seek to produce an individual that is capable of recognizing himself or herself in relation to social and natural history, and the possibility of directing his or her own destiny in the local community and as citizens of a globalized world.

63. Thus, environmental education is the result of new directions and links to knowledge and experiences that facilitate an integrated perception of reality; this implies the need to transform traditional methods and content, redirecting them toward a multi and interdisciplinary focus, and to a dialogue on know-how that assists in understanding and behaving in a complex world.

64. Acquiring this know-how must be through research and educational activities that enrich and modify patterns of experience, underscoring the idea of the commitment that the subject has toward the construction and transformation of his or her reality. In so doing, education contributes to proposals for new strategies for social occupation of space, production modes, and lifestyles that will ensure human survival and pursue the improvement of the environment and quality of life.

65. Environmental education textbooks will have to collaborate with the construction of a new environmental rationale that can be put into practice through the task of convincing others, through achieving consensus, and through concrete and participatory actions. This set of educational actions must become the backbone of sustainable environmental development. Actions entailed in environmental formation and education must contribute to creating a new social awareness that contributes and leads to sustainable human development.

2. Concerning guidebooks for teachers

66. All of the foregoing leads to the need to train teachers; any given project of educational innovation is doomed to fail without the participation of teachers. This situation is confirmed when handling content and environmental training methods, due to their interdisciplinary nature. Until now, the professionalization of teachers in this regard had not been given importance.

67. In this framework, the need to include in the panorama described a series of educational aspects that contribute to establishing new social awareness concerning the environment takes on newfound importance. Actions that, assuredly, must be of a multiple nature, but demand beginning now through a process of training teachers who –from their everyday spaces and tasks in school– will promote the aforementioned social awareness that must be created. This must be reflected through the work carried out with students and through an exchange of experiences with fellow teachers.

68. The training of teachers must exhibit certain characteristics that ensure that the task of multiplying new environmental awareness may have a solid academic foundation and be linked to clearly defined theoretic concepts. This will enable the generation of actions and research projects of greater academic scope, with

broader social projection, so that said actions and projects may have a solid foundation, both academically and operationally.

69. In this manner, an environmental training program for teachers demands:

- a) encouraging in educators the development of awareness of environmental problems, within the context of human development as a whole and that of national and regional socio-economical development;
- b) encourage educators to exhibit an interdisciplinary focus and the need to investigate and define content and environmental education experiences in an attempt to redirect everyday educational undertakings;
- c) training educators capable of identifying, examining, assessing and proposing alternatives to educational policy as concerns environmental training;
- d) preparing educators to develop practical alternatives and methodological proposals for environmental training;
- e) urging teachers to promote and encourage the various sectors and agents of society to develop projects in diverse environmental areas, and to be characterized as environmental managers seeking solutions to concrete problems and promoting new forms of development;
- f) preparing educators whose knowledge of environmental characteristics and new methodological proposals for their own region might foster actions that contribute to solving the regional problem.

3. What is expected of textbooks

- a) Textbooks must suggest an educational process that considers the appreciation of the natural environment and spaces built for interaction. The approach should gradually become more complex (case studies) and in keeping with the development of students.
- b) Educational material will elicit aesthetic appreciation and demonstrate harmonious relationships with family, friends and community.
- c) Textbooks will dwell on what should be changed and what should be conserved in all dimensions of sustainable human development.
- d) They will propose what they can be responsible for and will incorporate information on what has changed over time.
- e) They will state what problems are perceived and will tend to propose solutions that promote community participation. Textbooks will suggest that students ask questions of their family members and others in the community.
- f) They will offer information on existing lifestyles that do not exert negative repercussions on the environment and reflect on varying lifestyles.
- g) They will demonstrate that environmental knowledge is present even in the everyday habits of the students, bearing in mind their language, knowledge and participation.
- h) They will exhibit clear postures on ethnic, gender, and cultural and generational equity.

4. Some basic content

70. Fundamental notions such as: nature, ecosystems, biological and cultural diversity, complexity, development, sustainability, quality of life.

71. Sustainable development. Guiding reflections on the attainment of sustainable development and contributing understanding of this concept through interactions between society and nature.

72. Historic and geographic situation of the locality: Relations between society and nature in historic terms –local, national and international. The results of the relationships as concern the construction of a culture and the appropriate and inappropriate management of natural resources.

73. Diversity in cosmovision, knowledge and know-how: relations with the construction of the concept of development and sustainability. Linkage and dialogue between scientific knowledge and ancestral know-how, seeking to move toward paradigms and integrating know-how into the construction of a new science of complexity, post-normal science and dialogue.

74. Environmental ethics and values. Environmental participation, environmental rights and obligations. Solidarity between humans and nature. Interculturality. The ethics of the *other*.

75. Global environmental problems. Shared and differentiated responsibilities. The crisis of civilization, contemporary development models and their link to environmental problems. Sustainable development and its array of versions. Analysis of regional and international situations that bring about consequences for all of humankind, such as climate change and natural disasters. Emphasis on issues that affect the world and particularly the countries of the region.

76. Protection and good use of natural resources. Refers to the environment as a substratum in relation to humans, taking as the central theme for reflection the diverse natural resources available and the need for us to utilize them appropriately.

77. Local and national pollution processes. Focuses content on the analysis of environmental problems and polluting process of water, air, soil, etc. in the locality or region. Underscores the importance of reducing emissions and runoff, environmental conservation, recycling and sustainable production and consumption.

5. Types of practices and exercises

- a) Field trips ("field" encompassing both natural and constructed places) that allow for active and critical observation of diverse environmental situations.
- b) Classwork that focusing on complex themes from and interdisciplinary standpoint.
- c) Group techniques and dynamics that encourage creativity, role-play, simulation, and a spirit of cooperation to solve problems and judge situations, etc.

- d) Practices or workshops that include diverse artistic expressions to give way to creation and encourage imagination, intuition, and innovative proposals.
- e) Inclusion of popular legends and tales, study of rites and ceremonies, traditional know-how, etc.
- f) Creation of observatories on local, national and international environmental realities.
- g) Holding forums to discuss critical issues related to society – nature in today's world and in local contexts.
- h) In all cases it will be necessary to emphasize the possibility of imagining diversity in sustainable future.

6. Increasing levels of complexity in keeping with the psychogenetic development of children.

78. Each textbook will contain suggestions on the possibility of working and building environmental education that are in keeping with the psychogenetic age of participants in such a manner that the teacher can regulate the conceptual concepts entailed.

7. Design of educational experiences that are applicable to regional diversity

79. Environmental education textbook prototypes, their general design and content, may be adapted for different countries and geographical and cultural regions in such a manner that they be considered social, natural, cultural, economic and historic elements that represent the sphere wherein the students and teachers are located.

I. Design of textbooks

1. Drafting of prototypes and their adaptation to appropriate language for children and young people

80. Important elements in textbooks for children and educators are graphic quality and design; in addition to facilitating the work, these contribute to understanding, learning and motivation.

81. Three aspects that play an important didactic role will be carefully supervised:

- a) **Quality of graphics.** Clarity and aesthetics of printed material and graphic messages conveyed.
- b) **Pertinence of graphs.** These should correspond to the text, give a clear idea to students and teachers of the topic at hand and strengthen content.
- c) **Pertinence of language.** Language will be adapted to the age of the students being addressed in the text, and their social and cultural characteristics.

82. It is important to consider the crucial role of illustrations in the understanding of diverse topics, as well as the visual attraction and interest these awaken. In like manner, clear diagrams will facilitate reading and advancing in the materials in a more fluid and pleasant manner, especially when accompanied by a set of illustrations that aid in the understanding and learning of basic content and key points.

83. Text, images and diagrams should form one comprehensive whole: for this reason they are processes that must be managed as a set if we are to attain positive results.

2. Relationship between teachers' guidebooks and student textbooks

84. Materials will be worked with in an articulated manner, with the dual perspective of offering teachers' guidebooks and student textbooks. This is based on the need to work with both target audiences and also the importance of training educators.

3. Complementary material

85. Textbooks may contain complementary material that will expand the possibilities of application. Said materials may include reading books, maps, posters, enlarged diagram sheets for participatory discussion, observation guides, applicable participatory techniques, audio cassettes with music or content related to the environment, kits with environmental games, interactive CD ROMs to encourage research or containing complementary information, videotapes for work sessions, workshops or debates, etc.

