



ENVIRONMENTAL TRAINING



NEWSLETTER OF THE ENVIRONMENTAL TRAINING NETWORK FOR LATIN AMERICA AND THE CARIBBEAN

Volume 14, Number 31, July-December, 2002

Letter from the Editor

The Johannesburg Results

The World Summit on Sustainable Development (WSSD) was held in Johannesburg from August 24 through September 4. Just as it was foreseen during the Conference's preparatory process, it was not expected that this Conference would change the course of what was designed, agreed upon and launched at the previous Rio Summit in 1992. Nor was a reformulation of principles or strategies anticipated to direct the development process toward a sustainable future. Hence, the Summit's Final Report is a reaffirmation of both, the Rio Principles and the Agenda 21 as well as of those mechanisms set in motion ten years ago to achieve sustainability within the current context of economic-ecological globalization. The most significant outcome of negotiations and agreements reached among the 191 governments of the countries in attendance, was an "Implementation Plan" that implies the strengthening of established mechanisms, including the Sustainable Development Commission's and the conventions, agreements and protocols launched during the Rio + 10 process.

Previous to the Summit, the Secretary General of the United Nations, Kofi Annan, issued a warning saying that "the obsession for economic growth" was leading the human race to a dead end and asked the rich countries to do whatever was necessary to save the planet. Nevertheless, the implementation plan does not include a chronogram to eliminate agricultural subsidies in the rich countries or find a solution for the crisis of international prices of basic products. Neither does it include binding agreements to increase international assistance or the redemption of the external debt of poor countries.

Two of the outstanding results of this Summit are the confirmation of categorization of sustainable development as a core element of the international agenda and the new vigor given to global actions aimed at fighting poverty and the protection of the environment. Energy and health were critical topics in negotiations and an agreement was reached to establish a world solidarity fund for the eradication of poverty and the promotion of social and human development in developing countries. Africa was given special attention in this matter. Likewise, an agreement was entered regarding the diversification of energy sources and the increase in renewable energy resources, although the establishing of an agenda, a calendar and specific commitments was not attainable.

The Johannesburg Summit also reaffirmed the agreements reached at the Millennium Summit in 2000, which include the reduction by half of the number of people whose income is less than one dollar per day and suffer from hunger, as well as those that lack drinking water facilities and basic sanitary

conditions. With regard to health, it is intended to reduce mortality rates of 5-year old children and younger by two-thirds and maternal mortality up to 75% starting from rates prevailing in 2000. It is also intended to reduce by 25% the AIDS infection rate in men and women aged 15-24 in the most afflicted countries by year 2005 and globally by 2010. Fighting malaria, tuberculosis and other contagious diseases are also included. Furthermore, the improvement of living conditions of at least 100 million slum-inhabitants by year 2020 was also put forward.

With regard to management of natural resources it was proposed to develop schemes for the integral management of water by year 2005 and to promote implementation of an ecosystems approach for the oceans' sustainable development by 2010. Moreover, the pressing need for maintaining and restoring, insofar as it is possible by 2015, fishing resources to adequate levels that permit the maximum sustainable returns was expressed. Another proposal referred to the achievement by 2010, of a significant reduction of the present rate of biological diversity loss, and of a more acceptable access of developing countries to alternative substances to those that are harmful to the ozone layer, and provide them with assistance for meeting the established schedules of the Montreal Protocol.

With respect to the small island developing states, it was proposed to take initiatives aimed at the implementation of the

(continued on page 11)

CONTENTS

Letter from the Editor	1
Activities in the Region	2
Postgraduate System	5
Activities Outside the Region	6
NGO, Institute of Ecological Studies from the Third World	6
Article: <i>Environmental Prospective and Perspectives of Sustainable Development</i>	7



ACTIVITIES IN THE REGION

Ecology of Tropical Coastal Ecosystems

This is an intensive post-graduate field course on the Gulf of Mexico coastal ecosystems. It will take place during a period of six weeks (13 January to 21 February 2003) at the La Mancha Coastal Investigation Center (CICOLMA) and the coastal ecosystems that surround it. During the course, students will develop three types of projects: monitoring, oriented toward carrying out basic measurements of the environment; as a group, in order that they can devise observations and experiments together with the instructors; and individually, to be stimulated by working in small groups with less participation from the instructors. The physical environments to study are: coastal landscape; mangrove swamps, estuaries and marine vegetation; wetlands and beaches, dunes and rain forests. The course is coordinated by the Instituto de Ecología (INECOL), the Organization for Tropical Studies (OET) and the Louisiana State University (LSU) and will be realized within the framework of UNEP's Environmental Education Network Programme for Latin America and the Caribbean. It is intended for post-graduate students of any nationality with a command of Spanish. Offered for the first time in 2003, it will be imparted again in 2004 (the deadline for receiving applications for admittance will be advised). Financing will be available.

<http://www.ots.ac.cr/es/education/courses.shtml>

Pedagogy 2003

The Pedagogy Congress of 2003 will be held on 3-7 February 2003 at the Havana Convention Palace. The Scientific Programme to be developed during the five days of activity will be the following: 1. General and comprehensive education and culture: a combination to face the problems of mankind; 2. Education in ethics as central nucleus in the formation of personality and cultural and national identity; 3. Initial and permanent training of teachers in the improvement of educational systems; 4. Impact of new information and

communication technologies in the improvement of education quality; 5. Instruction, education and development. Pillars in learning and integral formation of the new generations; 6. Characteristics and formative needs of adolescents: transformations required for equality in a basic high school system for all; 7. Training of professionals and education of young people and adults: possibilities and realities; and 8. Education and scientific research. Challenges of the new millennium.

www.loseventos.cu/pedagogia2003/

Trade and Environment in the Americas

A week of dialogue (24 – 28 march 2003, Mexico City) on trade and the environment in North America and Latin America, presented by the North American Commission for Environmental Cooperation (CEC) and the United Nations Environment Programme (UNEP):

- Public workshop on chapter 11 of NAFTA, hosted by the joint public advisory committee (JPAC), 24 march 2003. Does Chapter 11 of the NAFTA protect the rights of foreign investors over the environment? The JPAC will host this one-day workshop to focus the widening debate on the controversial dispute settlement process. A regular session of the JPAC will follow on 27 March.
- Second North American Symposium on understanding the linkages between trade and environment, 25 – 26 march 2003. Energy and agriculture are the focus of this second Trade and Environment symposium. Sixteen research papers will be presented and discussed on issues ranging from energy subsidies to intensive livestock operations. The impact of trade on indigenous communities will also be discussed.
- UNEP Capacity building meeting on environment, trade and sustainable development for the Latin American region, 27 – 28 march 2003. Representatives from several countries and international organizations will meet to identify priorities and institutions to carry out a long-term capacity building program in Latin America. The meeting will feature several workshops on environmental goods and services, the TRIPS agreement and trade liberalization in agriculture.

Limited space is available to the public. For registration information, please contact the Commission for Environmental Cooperation in Montreal at (514) 350-4300, or e-mail info@cec.org For information on the Second North American Symposium and the UNEP Capacity building meeting contact: educamb@rolac.unep.mx or visit: www.rolac.unep.mx

Advanced Course on Development and Environment in Latin America

This course will be held on 9-10 April as part of the activities of the Ibero-American Congress on Development and the Environment, whose aim will be to deal with the complex objective of development and its relation with the environment from the economic ecological perspective and having as center of attention for the analysis the Ibero-American case in the present context of globalization. It will be imparted, among others, by the following professors and researchers: Dr. Enrique Leff, PNUMA, Mexico; Dr. Victor Toledo, Ecology Institute, UNAM, Mexico; Dr. Peter May, Federal Rural University of Rio de Janeiro, Brazil; Dr. Silvio Funtowicz, Joint Research Center, Italy; Dr. Joan Martinez-Alier, and Dr. Guiseppe Munda, Autonomous University of Barcelona, Spain; Dr. Fander Falconi, FLACSO-Quito, Ecuador. The event is organized by FLACSO-Ecuador within the framework of UNEP's Environmental Education Network Programme.

ffalconi@flacso.org.ec
<http://suport-gestio.com/cidma/curso.htm>

Ibero-American Congress on Development and Environment: “Local Challenges with respect to Globalization”

This Congress, which will be organized by the Ibero-American Faculty of Social Sciences (FLACSO), will take place on 11-12 April in Quito, Ecuador and intends to establish a plural discussion forum, both scientific and social, on concepts, methodologies and experiences which would permit the analysis of the relation between local development, environment and equity. One of the principal objectives of this event is to pave the way for the creation of an Ibero-American Ecological Economy Network (RIEE), the aim of which will be to reinforce the links between research groups in the region and encourage the relations of cooperation with groups outside the continent.

General objective:

- The central objective of the Congress is to offer an open scientific and social discussion forum on the problems of development and the environment, from an Ibero-American perspective, in a global context characterized by economic globalization.

Specific objectives:

- Identify common aspects and differential events that give rise to successful local development strategies, as well as to underline critical elements that threaten local development strategies.
- Make available to the scientific community and to civilian society a wide range of approaches, concepts, techniques and experiences that would permit a better design and analysis of economic, social and environmental development strategies.
- Generate a space for meeting and dialogue between experts of different cognitive spheres and social organizations, with the task of formulating integrated socio-scientific approaches of development and environmental issues in Ibero-America.
- Generate formal and informal bonds between researchers in different disciplines and countries (American and European) stimulating the incorporation of young investigators into the debate.
- Establish the basis for the creation of the Ibero-American Ecological Economic Network.

<http://suport-gestio.com/cidma/objetivos.htm>

Fourth Ibero-American Environmental Education Congress

The Ministry of Sciences, Technology and Environment of the Republic of Cuba, in coordination with the Ministry of Education, the Ministry of Higher Education, the Ministry of Culture, the United Nations Environmental Programme (UNEP) and other institutions, convened the Fourth Ibero-American Environmental Education Congress which will be held on 2-6 June 2003, at the "Palacio de Convenciones" in Havana, Cuba. The general objective is to promote a Project for Environmental Education through the cooperation and exchange between countries in the Ibero-American context, while the specific objectives are:

- Exchange experiences in the context of Environmental Education for Sustainable Development.
- To become informed of and communicate relevant experiences in education, participation, environmental communication and research in these fields.
- Foster theoretical-conceptual analysis and discussion on Environmental Education in the context of Sustainable Development.
- Support the updating of advances in information, education and training in Environmental Education.

The Congress will act within the framework of the Fourth International Convention on the Environment and Development to be inaugurated on 2 June and on this occasion will hold plenary sessions according to subjects, during the first session every morning. The Scientific Programme of the Fourth Ibero-American Congress on Environmental Education proposed that its delegates should participate on days 3, 4 and 5 to allow them time to attend the plenary sessions of the Fourth International Convention. The Congress on Environmental Education, in addition to presenting a magisterial inaugural conference and two round tables in plenary, will hold sessions on days 3, 4 and 5 in the afternoon and on the morning of the 6th in committees.

<http://www.cica.es/aliens/apice/>

First National Forum on the Incorporation of Environmental Perspective in Technical and Professional Training

The Autonomous University of San Luis Potosí (UASLP), the Mexican Consortium of University Environmental Programmes for Sustainable Development (Complexus), the Department of Public Education (SEP-SEIC, FOMES 2001), the National Association of Universities and Related Institutions (ANUIES), the University of Guanajuato (UG, Institutional Environmental Programme), the Center of Studies on the National Autonomous University of Mexico (CESUM-UNAM), the Department of the Environment and Natural Resources (SEMARNAT-State Delegation), the Department of Ecology and Environmental Management (SEGAM, Government of the State of San Luis Potosí), the National Academy of Environmental Education A.C. (ANEA, A.C.), the National Association of State Environmental Authorities (ANAEE) and the Commission for Education and Communication, Middle American Region, of the World Union for Nature (CEC-UICN) convene this Forum to be held on 9-13 June 2003 in San Luis Potosí, S.L.P., Mexico. The event is directed to academic institutions and organizations, governmental, private and civilian, as well as individuals who take part in formal educational programmes at middle and higher levels, in the form of technical careers, graduates, postgraduates, training and specific instruction, correspondence courses, open education and other modes with similar objectives.

<http://ambiental.uaslp.mx/foroslp/>

Symposium on American Environmental History

Within the framework of the 51 International Congress of Americanists, the area of Ecology History of the Chile University, is organizing this symposium that will be held in Santiago on 14-18 July 2003. Topics to be addressed are: Exploitation activities of organic natural resources: timber, firewood and wild fauna; Agriculture, agro-ecosystems and agro-alimentary systems; Extractive activities of inorganic natural resources: metals, precious stones, salts, etc.; Industrial development and polluting processes of air, water and soil; Social conflicts of environmental significance; Urban development and environmental issues; Human activity and transformation of the landscape; Environmental discussion, environmental thought and environmental policies; Use and exploitation of water resources: irrigation, energy and urban consumption; Technical change and the environment; Environmental determinant factors in the course of history (climate, natural disasters, etc.); Environmental accountability in the long term; and Development and perspective of American environmental history.

histoeco@uchile.cl

POSTGRADUATE SYSTEM

Brazil: Regional Postgraduate Programme on Development and the Environment

The Ministry of Education and Sports in collaboration with the Federal University of Ceará, Brazil, through the Rector's Office Programme for Research and Postgraduate, created in 1995, the Regional Postgraduate Programme for Development and the Environment (PRODEMA) that brings together the work of professors and researchers from eight universities in the northeastern part of Brazil. PRODEMA's objectives are the search for scientific and technical alternatives as well as the training of professionals dedicated to conservation of the environment and the improvement of the quality of life of the population. Among other sub-programmes, the Masters' Network offers a diversity of specialization areas: Regional development (Serpige Federal University); Socio-environmental development and monitoring (State University of Rio Grande del Norte); Development and the environment (Federal University of Ceará); Urban habitat and the environment (Federal University of Paraíba); Sustainable development (Federal University of Alogos); Regional and sustainable development (Santa Cruz/Bahia State University); and Biodiversity in the mid-north (Federal University at Piauí). Given the wide range of specialties the Masters' Network organizes meetings and congresses in order to integrate and exchange experiences related to teaching and research aimed at having a bearing on the addressed subjects not only on the regional context but at national level as well. Only recently, PRODEMA organized in September 2002 the Seventh Integrating Seminar, the Third Masters' Meeting of PRODEMA and the First National Congress on Development and the Environment.

<http://gw-prpg.prpg.ufpb.br/~prodema/arquivos/oprodema.htm>

Mexico: Masters' Degree on Environmental Education

With the aim of contributing to the construction of a new environmental culture, Mexico City's University has launched its Masters' in Environmental Education which, facing the environmental crisis afflicting the planet, is being proposed as a fundamental premise in the search for new forms of coordination with nature. To this purpose, construction of knowledge sustained by theoretical and ethical proposals and definition of strategies and actions based on democratic and participatory principles, is considered necessary. The general objectives of the Masters' degree course converted in terms of education theoretical orientations of its programme, are:

1. To train educators with a conception of an emerging complexity, which implies the generation of capabilities oriented toward the construction of an environmental rationality and alternative means for sustainability development;
2. To promote among participants an awareness of environmental issues in the context of general human development and national/regional socio-economic development; and
3. To contribute to the development of an environmental culture among teachers and inhabitants of Mexico City.

Rosa María Romero
Universidad de la Ciudad de México
Programa de Maestría en Educación Ambiental
Tel. y fax: (55) 5575-1177

Chile: Postgraduate Programme on Water Resources

The Concepción University in Chile together with the Washington State University have established this programme that offers Masters and Doctorates in water resources. Students will have the opportunity to develop a complete knowledge of scientific concepts and of environmental engineering of soil and water, as well as the capability to apply them in the planning, management and resolution of problems related to the quantity and quality of water in agricultural and industrial environments. The cooperation programme provides for students to enroll in the Masters' courses of the Concepción University and continue their study for a doctorate at the Washington University. Some of the specialization areas are: Engineering and science of basins; Hydrology of superficial and underground water; Quality of water and indefinite sources of contamination; GIS and environmental simulation models; Treatment and reuse of waste water; and Irrigation, planning and management of water for agricultural purposes.

www.chillan.udec.cl/posgradofia

ACTIVITIES OUTSIDE THE REGION

First World Congress on Environmental Education

This event will be held in Espinho, Portugal on 20-24 May 2003, sponsored by the Associação Portuguesa dos Engenheiros do Ambiente (Portuguese association of environmental engineers), the association Ordem dos Biólogos (Order of Biologists) and the Institute of Marine Research of Portugal. The main objective is to offer a platform to scientific experts, researchers, academicians, politicians, technicians, activists, the media and teachers, for discussing technical and scientific environmental education from an integrated perspective based on previously carried out work. Particular emphasis will be given to:

1. Harnessing the skills and experience of environmental educators from around the globe;
2. Transversal analyses of pedagogical, technical, scientific and social skills required for meaningful environmental education processes;
3. Critical analysis of the political economies of educational reform as these relate to environmental education and institutional change in different sectors;
4. Case studies promoting meaningful learning and highlighting diverse environmental education processes;
5. Critically analyzing key concepts and processes that are significant in environmental education, including multi-disciplinary and holistic approaches;
6. Promoting the basis for a global and periodic forum of international co-operation amongst environmental educators;
7. Consideration of the scientific dimensions of environmental education processes, particularly as these relate to environmental education research.

Closing date for submitting résumés is 29 November 2002 and for reception of papers 28 February 2003. After going through an arbitral review, documents will be published in the following international magazines: *International Journal of Sustainability in Higher Education*; *Environment and Sustainable Development*, *Applied Environmental Education & Communication*: an *International Journal*; *Canadian Journal of Environmental Education*. Papers in Portuguese, English, French and Spanish will also be published in the magazine *Speeches of the Open University of Portugal*.

First World Environmental Education Congress

Rua 15, 349, 4500 Espinho, Portugal

Tel. +351 22 7319115

Fax: +351 22 7319129

info@1weec.net

<http://www.1weec.net/>

NON-GOVERNMENTAL ORGANIZATIONS

Institute of Ecological Studies of the Third World

This organization was created as a response to the need expressed by organizations and local communities of the South for rescuing or creating new paradigms of social and economic organization, which would defy the model imposed by market economy, ensure the good health of ecosystems of the planet and respect natural and cultural diversity of the human being of all peoples. In this manner, it seeks to improve abilities for defending the environment and respecting the knowledge and processes of the different cultures and peoples that belong to the so-called Third World.

The institute offers a meeting place for ecologists, academicians, politicians, social movements and popular sectors, with the objective to boost an ecological thought from the perspective of the third world and contribute to the debate on sustainability, sovereignty, collective rights and the participation of societies in decision making regarding the local, national and international environment.

Since August 1996, the institute has organized courses and seminars, national and international, on the most varied current issues in the field of the environment, from a Southern perspective and with a trans-disciplinary approach. It also promotes the exchange of experiences and training in the sectors organized by their initiatives directed toward the defense of the environment.

The addressed subjects in these courses have strengthened participatory processes of social organizations as well as their influence, by employing solid ecological arguments at different national and international forums related to the defense of nature and life, to sustainability, biodiversity, biosecurity, food sovereignty, and collective and environmental rights of threatened societies by the current development model.

www.institutoecologista.org

Environmental Prospective and Perspectives of Sustainable Development

Enrique Leff*

Prospective in perspective

Ever since the dawn of civilization, looking into the future has obsessed the human being. The tragic vision of a world faced by predestination and the ineluctable character of fatality in human events, has nourished the fascination for the soothsayer to foretell happenings of the future. Illuminism of reason in modern times, has sought to construct a secure world based on the power to control and predict offered by an objective science and on the transformative capacity of technology over unknown forces of nature and undetermined powers of magic.

Prospective studies originate from this scientific culture rather than from divinatory or premonitory arts concerning world events and the uncertainties of life. However, scientific rationality—in its desire to attain objectivity, truth and certainty—has failed to attain its most transcendental purpose: to build a world that, by following its rules, would be predictable, controllable, secure and transparent. Its greatest aspiration has been the invention of *homo oeconomicus*, whose rational judgment would have adjusted its reasoning, perceptions, motivations and wishes to a model of economic reason. This ideal of rationality generated a constraint in reason in order to eliminate all traces of “irrationality” in the human being, inducing a normative behavior and subjecting him to the rules of science and the categorical imperative of his calculation instruments, in such a way that the future behavior of nature, economy and life could be predictable. The project has been no other than to make human behavior functional to the conditions of growth of the economic system and the orderliness required to meet his theoretical generalizations. Human science, following the mechanistic model of the origin of the natural science, is moving away ever more from the human order of things. Economic and social theory has ceased to represent reality to become a model of simulation that, by means of social engineering, has constructed a reality to its image and likeness, sinking into a horizon of ignorance, risk and uncertainty.

The ideal of science to overcome fate by furthering knowledge of the future in order to impose an ethic capable of halting human criminality and natural disasters, now only sustains the imagination of novels and science-fiction films, where we could exorcize the evil by bringing forward events of the future thus preventing the occurrence of predestined happenings (Spielberg: *Minority Report*). Today science-fictional no longer exists, simply because fiction has become part of the very being of science, dissolving its power for prediction and showing that uncertainty and chaos are intrinsic and ineluctable conditions of the order of the world, of mankind and of nature.

The generalization of scientific and technological rationality to all domains of being, and the order of things combined with globalization of economic rationality, are accelerating the ecological risk by contravening the natural order of life and deactivating the balancing mechanisms of ecosystems and therefore, hastening the entropic death of the planet. In this perspective, the rational and scientific management of risks seems to be a fatuous aspiration when faced by the fatal strategies of economic rationality. This rationality cannot escape from its drive for growth that induces it to destroy its ecological conditions of sustainability by nourishing itself with an always increasing consumption of nature (of matter and energy) and that, by following the laws of entropy, generates an ever increasing emission of greenhouse-effect gases and heat as the most degraded form of energy.

Environmental crisis, ecological risk and sustainable development are thus confronting ignorance of scientific and economic rationality with the enigma of knowledge, and life responsibility with global insecurity. The globalization process that leads to the establishment in all corners of the world of the rationality of Illuminism of sciences, of technological power and the economic market system, has generated processes that have overflowed the understanding capacity and control of science over that which is real and its objects of knowledge. Its reflection on reality is perceived as diverse processes of lack of control over events and happenings of the world, including ecological disasters and socio-environmental degradation that is expressed in the contemporary forms of poverty, insecurity of inhabitants, ecological unbalance and global warming of the planet.

The inadequacy of science to foresee and anticipate catastrophic happenings and to successfully achieve a scientific management of ecological risks has opened the post-normal scientific field, akin with uncertainty to inform public policies (Funtowics & Ravetz, 1990) and to make participatory decisions. Risk and uncertainty ascend from the abyss of science's promises—from its capacity to predict and control—and are expressed in the vertigo of global insecurity and unsustainability.

Prospection and world models

The process of globalization created an important niche to prospective studies within the needs of economic planning. Insofar as production became more dependent on scientific innovation and on technological change as privileged inputs of the economy, the need became evident to plan the orientation of science and technology. Prospective technology gradually became a strategic means for the management of technical change and for expediting the plotted path of economic growth

* Synthetic version of the conference presented at the V Encuentro Latinoamericano de Estudios Prospectivos sobre La Seguridad Global y el Papel de América Latina en la Construcción de una Agenda de Futuro al 2025, organized by the Centro de Estudios Estratégicos para el Desarrollo, the Red Latinoamericana de Estudios Prospectivos and the World Future Society-Cahapter Mexico at the University of Guadalajara, December 3-5, 2002.

(Jantsch, 19967). At the same time, a new space for prospection was opened, oriented toward the social control of scientific and technological applications (Hetman, 1973) with the object of foreseeing, anticipating, containing and halting negative impacts of dominant trends of processes unchained by instrumental rationality.

The very first debates on the topic of the environment were commenced with a study of prospection. In 1972, MIT and the Rome Club published a study on *The Limits of Growth* (Meadows et al, 1972) that for the first time, a critical approach related economic and demographic growth to the same basis as the sustainability of the planet. The study, based on a simulation model, extrapolates the tendencies of economic and demographic growth, technological change and the forms and trends of pollution, concluding that its negatives synergies could provoke an ecological collapse of the system by year 2000, unless its tendencies were reverted. Faced with this catastrophic prediction, prospective studies in Latin America paved the way for other models that would permit the analysis of alternative scenarios based on the application of demographic policies, the distribution of income and forms of production, which by these means were permitting to change relations fixed and predetermined by the economic structure and dominant tendencies, opening as well possibilities for the construction of more ecologically sustainable styles for development (Herrera et al, 1976).

Environmental prospective became part of the rationality of knowledge in the context of incipient economic-ecological globalization. In these studies, future appeared as a virtual space where already pre-established tendencies were to be carried out, or for building feasible scenarios aimed at orienting actions in the uncertain field of development planning. However, in this concept of future, sustainability of development is constrained from the beginning by the vision of the present and by a rationality that prevents the perception of the power of the real in the construction of possible alternatives. The dominant rationality of progress and development appear to be a *force majeure* that submits the bounds of possibility to the existing reality.

Prospective studies face a theoretical as well as practical issue in a world where reality has been substituted by models. Models that simulate reality have thus replaced ontology of reality. Global hyper-reality emerges from this attempt of modeling reality and becomes entangled in the web of its own fiction. In the world governed by this model, future is no longer the realization of a change but the outcome of strategies of economic power that re-codifies every ontological order of being in terms of capital: economic capital, natural capital, human capital and cultural capital. Hence, every attempt to construct the world results in a simulation that is beyond all ontology of being and of all epistemology to comprehend what is real. At the same time that science holds on to the positive ideal of a science capable of understanding and controlling reality, prospective studies emerge in the era of the sign, the code and the model that each time strays further away from its factual referents –that which is real—to construct virtual realities and floating life worlds in the circulation of economic value. Prospective studies thus become a simulation of a future deprived of a political project founded on the potential of the real and the symbolic, of nature and culture.

Certainly, prospective studies have made room for premonitory and visionary arts of communities of experts based

on informed knowledge. However, reality has made a mockery of the best forecasts of science and scientists to the extent that today, the value assigned to survival demands the application of the *precautionary principle* due to the prevailing ignorance of science about ecological risk. At the same time, the capacity of science for prediction –with the certitude of its uncertainties and unproven probabilities—appear as a resource of wisdom when faced with the blindness of economic and instrumental rationality, which affirms and asserts itself without knowledge of causes, forces and reasons that drive actual environmental processes.

Prospection, as the aptitude and method to foretell the future, foresees the catastrophic end that could occur if the dynamics of processes guided by dominant instrumental rationality do not change, but cannot manage to scan its causes, anticipate its changes or propose alternatives. The models of simulation are useful to construct scenarios based on such reasoning as “if such an event were to occur, it would produce such an effect” based on correlations and interdependencies of existing processes. In the best of cases, the opinion of experts stimulated by brainstorming and rational dialogue, could generate an informed and coherent judgment on the probability of the occurrence of some events, or could perceive changes and possible alternatives, affording the opportunity to think of possible turns of reality of history based on alternative decisions, beyond simple extrapolation of facts and tendencies. But in general, in such exercises as these, the possibility to construct a new social rationality in the presence of predominance of an economic supra-rationality that constrains, holds and models every possible change, is occluded. Sustainable development implies to think of alternative rationalities (more so than new development styles or models) that have been confined to the field of a critical philosophy that has not been able to permeate prospective studies.

Today, in the presence of the rule of market globalization and pragmatism, prospective approaches seem to have been relegated to the confinement of academic efforts, inconsequential to political processes. While we are living in the society of risk and that uncertainty is claiming its ontological right in the world of science (Prigogine, 1997), decision makers presently do not think of founding sustainable development policies on prospective studies concerning ecological risk. Blind faith is the “invisible hand” and in the transparency of market mechanisms, discredits any forecast based on scientific knowledge and more so on values foreign to the principles of the dominant rationality.

Thus, predictions of the International Panel for Climatic Change (IPCC) do not seem to alter the certainties of economy. The precautionary principle established in Rio 92 that states the reason for preventive judgment in the presence of risk, including issues in which scientific knowledge cannot establish conclusive evidence, has not got beyond being a marginal moral judgment regarding criteria in decision making dealing with sustainable development.

Unsustainability forecast: climatic change and ecological security

In the field of prospective sustainability of the planet, the controversy lies on the priorities of economic globalization and on processes of ecological degradation. As long as the prevailing economism on decision making tends to discredit

the importance of global warming and that maintenance of the economic system prevails over nature's conservation, social and ecological disasters that are causing so much damage to the environment and to the most vulnerable sector of the world's population, are claiming for an effort to be made in prospective studies regarding ecological risk to attain the ecological balance of the planet, the conservation of biodiversity and the wellbeing of humankind. In a context in which the countries in the North refuse to or are incapable of reducing their emission of greenhouse-effect gas on the basis that it would affect their economic interests, the Scientific Committee of the IPCC, has issued a warning in its most recent retrospective and prospective studies about the progress of global warming and the planet's ecological degradation, together with the involved socio-environmental risks. In this sense, the IPCC states that:

a) It is very likely that the 90s and 1998 have globally been the hottest decade and year respectively since 1891. Likewise, the increasing temperature during the twentieth century is very likely the highest in the past thousand years.

b) Since 1750, atmospheric concentration of carbon dioxide has increased 31%, that is, from 280 ppm to around 367 ppm today. The present concentration of CO₂ has not been exceeded during the past 420,000 years and possibly during the past 20 million years.

c) Average of global temperature on the earth's surface would increase from 1.4 to 5.8°C between 1990 and 2100, well above the increment of 0.6 registered since 1861. So high an increment could very well mean an elevation of sea level from 0.09 to 0.88 meters between 1990 and 2100.

The Worldwatch Institute warns that the number of people affected by disasters around the world, increased from an annual average of 147 million in the 80s to 211 million in the 90s. During the last decade, the financial costs of "natural" disasters amounted to 608 billion, more than all previous decades and it is estimated that should the sea level continue raising and climate get to extremes, vulnerability to "natural" disasters will increase.

In view of the imminence of ecological risk, sustainability perspectives are not reduced to the premonition of environmental catastrophe, but ecological prospective must serve to deactivate and revert currently unsustainable processes that use as an excuse the uncertainty of scientific judgment. Beyond science unfounded determinism, adaptations to pre-established tendencies and irruption of unforeseen events, prospective implies orienting reason to the analysis of what is possible and of the alternative, looking at what reason has hidden in the blind side of knowledge: the ecological potential and cultural diversity of the planet.

In the scenario of economic-ecological globalization, transition to sustainability and ecological security is being left to market planning rather than to the construction of alternatives based on prospective studies. Aggravation of development's inevitable ills is translated into the establishment of global goals for a future lacking an analysis of the possibility to maintain processes ongoing and to re-orientate the path toward achieving its pre-established objectives. In this manner, in recent world conferences (Millennium Summit in 2000; World Summit for Sustainable Development in 2002) the option has been to establish a series of goals regarding the most critical issues of our time (poverty, climatic change, education, drinking water supply, sanitation and renewable

forms of energy) for the survival of humankind and the planet, without an analysis of means for its attainment, which in the end are left to the proper operation of market mechanisms and on the availability of sources of funding.

In order to obtain the consensus necessary to reach such non-linking commitments, recourse can be made to simple arithmetic. Thus, it has been proposed that by year 2015 the rate of extreme poverty (afflicting those whose income is less than one dollar per day, which also means that everything would be measured in market terms) would be reduced by half; clean water supply and basic sanitation services provided to at least half the population lacking such facilities; there would be basic schooling available for everyone, maternal mortality reduced by three quarters and the mortality rate of 5-year olds and younger by two thirds; and that propagation of AIDS would start declining (United Nations 2002). In order to achieve such goals, a 13 year term was established: not too short a time to render unachievable these objectives and not too long to reduce to a declaration of good intentions. Nevertheless, in no case a critical path was established that would lead to the attainment of these objectives, thus rendering such goals to be subjected to economic growth and an adequate and transparent performance of market mechanisms.

Toward a sustainable future

Transition of the present world to a sustainable future implies an opening of the rationality that has constructed the totalitarian project of epistemological positivism, and of the techno-economic apparatus that moves forward with inertia toward the entropic death of the planet. Such inertia is not the becoming of being but the finalization of modern rationality in ecological catastrophe. Transition to sustainability does not mean the unfolding of an ecological essence of the world, but the opening that leads to an alternative civilizatory process. This in turn presupposes the de-construction of the economic and instrumental rationality oriented toward management of environmental services and ecological risk, with the object of constructing an *environmental rationality* based on the valorization of dominated knowledge and cultural rationalities that give rise to the creation of the other, that which is different and the alternative beyond the dominant trends, objectified in a reality which closes on itself in an end of history.

Environmental prospective means constructing a new rationality that implies the un-entification of the objectified, technified and de-personalized world. It refers to a de-identification of thought and reality, of truth and the being.

Every prospective vision has sought to foretell the future from an observer's perspective, from a "thinker" who could move from place to place and from there change the arrangement of objects-processes of reality in a "game of harmonization" of systems and synergies. But, what happens when the lights of the mind gradually fade before reaching its aim and stops projecting itself into the future, when the path leading to the intended objective is covered by a reality that even beforehand fills the entire space of reason and devours everything and re-codifies every order of being and all that exists in terms of capital? Then, the horizon of possibilities fades because the connection between thought and what is real has been lost in present times. The world has become a game of simulation where the visible reality has become *atrompe l'oeil* and utopia a *trompe pensée*. Prospection fades once time has stopped and that what is real deactivated; when thought is constrained

and imagination dissolved by a “way of production of the real world” (Baudrillard).

Prospection is the projection of the present into the future. But, what happens when the being’s line is broken, the one that goes through past times into the present and projects itself into the future, when the being can no longer be interrogated because the world has been besieged and invaded by a supreme rationality, which projects and imposes itself over all orders of life? Hence, only remains to watch its impacts, just as the realistic thought that occupied the place of utopia, projecting into the future what exists today and to bring up to date the dominant reality, ignoring the possibility of “what is not yet”. Prospection has become a model but the model does not respond to reality but to the simulation of the world it promotes and to the reality it has constructed. While prospection simulates and the strategies of power dissimulate, lacerating realities emerge from environmental degradation, along with social inequity and poverty, nullifying the perspectives of a sustainable world.

Thus, environmental prospective implies the deconstruction of the dominant rationality and the construction of a new one. A sustainable future cannot be founded on the blindness that has presently taken possession of our existence. The vision of the visionary must be recovered and ascend higher to have a better perspective before adjusting our prospectations to the reason of *force majeure* imposed on the possibility of being by the weight of reality. Construction of sustainable societies involves the *will to power* (Nietzsche) to deconstruct the plotted path to the planet’s entropic death and construct a new rationality that would open the mind from the blind spots of dominant paradigms and from the environment as a potential to think “what remains to be thought” (Heidegger) and to open the channels of becoming towards “what is not yet” (Levinas).

As suggested by Canetti, if what is real has dissolved; if we live in a world saturated with an accumulation of effects already unattached from their causes; if factual present no longer constitutes a referent to foresee the future since “events absorbed their own meaning and nothing can be predicted” (Baudrillard, 1993:17), What sort of destiny should a prospective vision deactivate if nothing is already predestined? Under which perspective should we look at the horizon of sustainability? Obviously, this cannot be the extrapolation of contemporary inertial processes nor the waiting for the unchaining of events and trends leading to the entropic death of the planet. The future is a project to be structured and sustained in a new rationality.

Prospection changes its perspectives once science has witnessed the dawn of the certitude of its certainties, of its capacity for controlling reality and its power to forecast future events. Faced with the impossibility to anticipate the effects of modern processes and considering the perspectives of unsustainability and ecological insecurity, the proposal for managing risk is oriented towards implementing early warning programmes and to ex-post responses such as the evaluation of environmental impacts. In view of the impossibility to foresee the effects produced by negative synergies on economic growth, the technological intervention on life and global warming; or the succession of innovations generated by the over-economization of the world and over-technification of life, the field of biosecurity is opened. Nevertheless, technological intervention of life keeps moving forward

without being detained by the precautionary principle, without the early warning programmes being able to anticipate its impact, or society to prevent and take precautions against the ecological risk and the uncertainties of trans-genesis. Environmental legislation appears to be a belated form of defense, reactive and incomplete to confront the emergency of events and unprecedented damages that represent a threat to sustainability and to the security of the planet.

The construction of sustainable societies, in a sustainable future, implies specifying goals that lead to foresee the change of tendencies and new equilibriums. It is the construction of a transition process of an entropic economy to be balanced with a negentropic economy. It also implies to aim at stationary states of processes presently led by the dynamics of growth (demographic, economic, environmental pollution, ecological degradation); to deconstruct structures, rationalities and ideologies that propitiate unsustainable processes, monopolistic powers and totalitarian systems to pave the way for the construction of a society based on cultural diversity, democracy and difference.

In the perspective of the ineluctable path toward the entropic death of the planet, led by the dominant economic rationality that has already passed beyond the ecological conditions that sustain life in the planet, the time has come for the construction of an environmental rationality that attains the equilibrium of negentropic processes which generate life and of ecological conditions supportive of the economic process, with entropic processes derived from the metabolism of live organisms and from eco-technological processes that cause the entropic degradation of the planet.

In global terms, all this implies the need to stabilize demographic dynamics in this century (predictable at a level of 8 to 12 billion inhabitants by year 2050) which should stabilize the entropic degradation caused by human metabolism. However, balancing human population with the planet’s capacity for sustainability will not depend on the number of inhabitants but on how human needs and wishes are satisfied through endosomatic and exosomatic consumption of matter and energy and on the manner, rhythm and forms of extraction, production and appropriation of nature.

In the same line of thought, it implies to lead the economy toward a balanced entropic-negentropic state. The contemporary model of production and the economic rationality that generates it, are unsustainable in essence since they generate a process of growth based on the increasing consumption of natural resources of low entropy, progressive destruction of ecologic sustainable conditions and increasing production of heat. Although demographic dynamics may be stabilized by means of policies that induce cultural change, economic rationality does not contain stabilizing internal mechanisms since it is constrained by a need to grow destroying along the way the surrounding environment and generating entropy. Thus, it is rather innocent to suggest for it to be adapted to the ecological conditions of the planet and to limit its rhythm of growing to the renovation level of the base of resources. The only possibility to halt the ecological collapse brought about by the economic process, is the construction of a new productive rationality founded on the increment of negentropic productivity based on photosynthesis –the only negentropic process in the planet– that depends on the conservation and restoration of the ecosystemic organization aimed at magnifying eco-technological productivity, which is

based on the potential of nature and the potential of culture. This purpose of reaching equilibrium between negentropic and entropic processes in the production of use values for humanity arises as a condition for sustainable future.

Bibliography

- Baudrillard, J. (1983), *Les Stratégies Fatales*, Bernard Grasset, París.
- Funtowics, S. y J. Ravetz (1990), *Uncertainty and Quality in Science for Policy*, Kluger Academic Publishers, Dordrecht, Holanda.
- Jantsch, E. (1967), *Technological Forecasting in Perspective*, OCDE, París.

- Herrera, A. et al (1976) *Catastrope or New Society. A Latin American Model*, IDRC, Ottawa.
- Hetman, F. (1973), *Society and the Assessment of Technology*, OCDE, París.
- Leff, E. (1998/2002) *Saber Ambiental. Sustentabilidad, Racionalidad, Complejidad, Poder*, Siglo XXI/UNAM/PNUMA, México.
- Meadows, D. et al. (1972), *The Limits of Growth*, MIT, Cambridge.
- Prigogine, I. (1997), *El Fin de las Certidumbres*, Taurus, Madrid.
- United Nations (2002), "Implementation Plan", World Summit of Sustainable Development.

(Letter from the Editor, continued from page 1)

Global Action Programme for the Protection of the Marine Environment from land-based activities, in order to reduce, prevent and control pollution and wastes and its consequential impact on health. The proposals also included the development of community action in favor of sustainable tourism and to revise the implementation of the Barbados Action Plan for Sustainable Development in these small countries.

As regards to education, the Johannesburg Summit ratified

the goals established at the Millennium Summit and the Action Programme "Education for All" of Dakar, particularly the challenge of having all children completing primary education by 2015 and abolishing gender disparities in primary and secondary education by 2005. Furthermore, it was recommended to the General Assembly of the United Nations, to consider adopting the 2005-2015 decade to be dedicated to education on sustainable development.

Manifesto for Life. Toward an Ethics for Sustainability

We remind our readers that the complete text of the *Manifesto*, in Spanish or English, can be accessed at:

<http://www.rolac.unep.mx/educamb/esp/manintro.htm>

Likewise, the list of adherents can be consulted and if you wish, you can subscribe to the *Manifesto*.

The pdf version of the book *Ética, Vida, Sustentabilidad*, resulting from the Symposium on Environmental Ethics and Sustainable Development held in Bogota, Colombia on 2-4 May, 2002, can be found at:

<http://www.rolac.unep.mx/educamb/esp/catalogo.htm>



Environmental Training is the newsletter of the Environmental Training Network for Latin America and the Caribbean of the United Nations Environment Programme.

Director of UNEP/ROLAC

Ricardo Sánchez Sosa

**Editor and Coordinator of the
Environmental Training Network**

Enrique Leff

Editing, design and layout

Claudio M. Amescua García

Assistant

Tannia Falconer de la Muela

Environmental Training is not an official document nor does its content necessarily reflect the opinions of UNEP. The designations used herein do not imply the expression of any opinion whatsoever on the part of UNEP concerning the legal status of any country, territory or city, its jurisdiction or the demarcation of its borders or limits.

The contents of this newsletter may be reproduced free of charge, as long as credit is given to *Environmental Training* and, when pertinent, to the authors of the articles, as the source. The newsletter accepts short articles on environmental training topics, but assumes no commitment to publish them.

Subscriptions: *Environmental Training* is an information service provided by UNEP free of charge. If you are not on our mailing list and wish to receive this newsletter, please send us your name, institutional data and address. We would appreciate your advising in advance of any change in address.

The logotype of *Environmental Training* combines two prehispanic Mexican seals and a character from the post-Conquers Codex Mendoza. The logotype embodies a meaning of communication and environment, based on the following symbols: the flower seal signifies vegetation and crops and is related to water as shown by the presence of wavy lines. The bird is associated with life in the air and finally, the character with the glyphs represents the communication of thought, traditions and teaching.



United Nations Environment Programme
Regional Office for Latin America and the Caribbean
Boulevard de los Virreyes 155
Col. Lomas de Virreyes, 11000, México D.F.
MÉXICO

Phone: (52 55) 5202-4841 / 6913 / 7493 / 4955 / 7529
Fax: (52 55) 5202-0950
E-mail: educamb@rolac.unep.mx
Website: www.rolac.unep.mx

PRINTED MATTER