

## **Fourth International Symposium for Sustainable Development in the Andes: The Andean Strategy for the 21st Century**

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## Fourth International Symposium for Sustainable Development in the Andes The Andean Strategy for the 21<sup>st</sup> Century

The Andean Mountain Association (AMA), sponsored by the United Nations University (UNU), organized its Fourth International Symposium for Sustainable Development in the Andes (AMA-Mérida 2001) from 25 November to 2 December 2001 to take advantage of a unique opportunity to analyze the challenges and opportunities of Andean reality in the 21st century and stage a key event leading up to the International Year of Mountains (IYM2002). Coordinated by Maximina Monasterio (AMA president 2001–2004) and Rigoberto Andressen (Instituto de Ciencias Ecológicas y Ambientales [ICAE]), this event took place at the IC AE, Universidad de los Andes in Mérida, Venezuela.

The Symposium was attended by more than 250 participants from 21 countries, including academics from many different disciplines, representatives of governmental and nongovernmental organizations, and inhabitants of Andean communities. A final declaration was produced, and the main results of the Symposium will be available in IYM2002.

AMA-Mérida 2001 consisted of 2 sessions and 5 workshops.

### 1. *The Andes: scenarios for change at different scales (session).*

- Coordinated by L. Llambi, L. Romero, and N. Velásquez, this session focused on analysis of interrelationships among key factors promoting socioeconomic and environmental change in the Andean ecoregion, from the global to the local scale. Discussions centered on the role of multilateral negotiations (eg, WTO) and regional processes of economic integration (eg, MER-

COSUR) in the definition of a new international order; the role of technological change, especially new agricultural biotechnologies, computer and information technologies, and telecommunications; and the role of public policy, particularly locally oriented development policies. An important part of this session was a round table on the effect of drug production in the region and international plans for its eradication. Participants were very critical of the “Plan Colombia” because of its disproportionately large effect on the poorest farmers in the region and its “top-down” approach that ignores environmental, socioeconomic, and cultural realities in the region.

### 2. *Management of biodiversity: protected areas and susceptible areas (session).*

- This session was coordinated by I. Goldstein and focused on sustainable development and agricultural land use strategies, protected areas, and traditional knowledge and the value of biodiversity for resource use. Discussions in the first area centered on theoretical and methodological approaches for analyzing the relationship between ecological, social, and economic sustainability. The second area was concerned with the potential contributions of a diverse array of strategies for conservation of protected areas (ecological corridors, analysis of ecoregions). In the third area the importance of food security for conserving the large agro-diversity of the Andean region was discussed, as well as the richness and complexity of local strategies for its management.

### 3. *Climate change, water resources, georisks, and natural disasters (workshop).*

- The objectives of this workshop (coordinated by R. Andressen, R. Pulwarty, A. Henao, and J. Lafalle) were to discuss important aspects related to climatic variability and climate change, including paleoclimates and extreme events; analyze the vulnerability of human population centers to natural disasters in the Andean region; and discuss proposals for effective watershed and georisk management. Participants agreed on the need for predictive strategies in the region to mitigate the effects of natural disasters. This led to the creation of an interdisciplinary and inter-Andean working group on Risk Management and Natural Disasters Mitigation. The workshop concluded that there is a need for large development projects (eg, hydroelectric dams), financed by institutions like the World Bank, to dedicate about 2–3% of their budgets to analysis of vulnerability in the face of natural disasters.

### 4. *Andean cloud forests (workshop).*

- The papers presented in this workshop coordinated by M. Ataroff and A. D. Brown covered a large and complex set of issues, including plant population dynamics; the diversity, community structure, and resilience of cloud forests; their functioning in terms of nutrient and water balance; and the effects of human-induced processes such as fragmentation and erosion. The following environmental services of cloud forests were highlighted: their contribution

to regional water balance and control of climate, control of floods and erosion, maintenance of carbon sinks, conservation of natural resources (eg, timber), and maintenance of cultural and spiritual values. Key strategies identified for conservation of cloud forests included environmental education, an increase in the surface and connectivity of protected areas, and more active involvement of the scientific community, together with local inhabitants, in decision-making processes. Participants called for the implementation of a Cloud Forests Network to undertake activities at the national and international levels.

5. *The Andean Páramos: challenges for the 21st century (workshop).*

- This workshop, dedicated to the memory of the father of all paramólogos, Don José Cuatrecasas, and coordinated by M. Monasterio and R. Hofstede, was organized in 3 sessions. The first session provided a regional panorama of this unique tropical montane ecosystem, based on complementary realities in Colombia, Ecuador, Peru, and Venezuela. It highlighted the central role of páramo areas as water towers for the region, their great environmental and cultural diversity, and the importance of understanding their dynamic historical process of natural and cultural evolution. The potential effects of climate change on the páramo (an ecosystem that is likely to be drastically affected) were strongly emphasized. The second session provided an overview of initiatives on research and management of the páramo. The management experiences presented clearly illustrated the potential for conflict involving environmental services and their use by local populations. The potential environmental, economic, and cultural effects of

tourism, interpreted as an environmental service, were also discussed and case studies suggesting interesting tourism management strategies presented. The third session of the workshop was dedicated to the creation of the International Páramo Group for sharing experiences, identifying priorities, and proposing and executing regional cooperative and comparative initiatives for research and policy formulation.

6. *Fertility regulation in agroecosystems of the Tropical Andes: effects of biological, ecological, and cultural diversity (workshop).*

- This workshop was organized by the MOSAndes project (CYTED) and coordinated by L. Sarmiento. The MOSAndes project is devoted to understanding the processes that regulate soil fertility in Andean agro-ecosystems and to analysis of management alternatives. The contributions covered 6 thematic areas:
- Functioning of long fallow agricultural systems, including the mechanisms involved in fertility restoration and loss during the fallow and cultivation periods.
- Simulation models as tools for designing sustainable management systems.
- Functioning of Andean soils, considering both the unique characteristics of the tropical high-altitude climate and the differences between contrasting Andean regions (such as puna and páramo).
- Integrated management of fertility, including the management of pathogens as a component of soil fertility.
- Use of bioremediation to restore soil and water polluted by agrochemicals and industrial residues.
- Consequences of rapid and intensive transformations of natural ecosystems on soil functioning and biodiversity.

The workshop concluded that a profound knowledge of the ecologi-

cal mechanisms implied in fertility regulation is essential for the design of management alternatives that take into account the unique characteristics of Andean environments and the potential offered by local biodiversity.

7. *Information networks for the sustainable development of Latin America (NSDLA/REDISAL)*

- During the Symposium, REDISAL—an association of information networks founded in Chile in 2000 by CGIAB, InfoAndina, REDCAPA, REDECO, REDEPA-PA, and REDESMA—met for the second time, coordinated by A. M. Ponce and L. Rojas. REDISAL aims to share information on sustainable development in areas such as agriculture, forestry, fisheries, and water and soil resources. The second REDISAL meeting arrived at a “Declaration of Principles” that presents REDISAL as a support network stimulating dialog between the different actors who use, live, and work with natural resources in governmental, academic, or environmental organizations. The declaration also establishes that the network does not subscribe to any particular position on sustainable development and is not at the exclusive service of any social or governmental sector.

The authors of this report thank all the reporters for the sessions and workshops for their diligent work. This general overview of the Symposium would have been impossible without their efforts.

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