

# **International Environmental Dialogue in South America - Discussing Common Interests in Environmental Information and Communication - CEGeoIC2013 Bogota Conference Report**

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## **1 Organizational Details**

CEGeoIC2013 was organized by

CODATA-Germany, the German National Committee for the ICSU Committee on Data for Science and Technology

in cooperation with

National University of Colombia, Bogota  
Human Sciences Faculty, Department of Geography

International Congress of Environmental Sciences, Colombia  
Congreso de Ciencias y Tecnologías Ambientales, Colombia (CCyTA)

CODATA Taskgroup on  
Preservation of and Access to Scientific and Technical Data in/for/with Developing Countries

International Cartographic Association  
Commission on GIS and Sustainable Development

INTERCARTO / INTERGIS Conference Series

International Cartographic Association  
Commission on Cartography in Early Warning and Crisis Management

This International and Interdisciplinary conference was sub-titled “Achieving Sustainability Goals through Knowledge Sharing” and was dedicated to scientific and technical methods of environmental information and communication. Special regard was given to the central role of Geoinformation.

The CEGeoIC conference provided a forum for the presentation of scientific papers illustrating the efforts of the research community, professional papers describing the cutting-edge methods employed by environmental

and geoinformation organizations and companies, furthering their national as well as international collaborative efforts to advance knowledge and techniques of environmental information and communication.

CEGeoIC2013, the International Conference on Geo- and Environmental Information and Communication, welcomed 55 participants from 15 countries.

The program of the international conference consisted of 12 sessions. Parallel to the English language international conference there were 3 workshops in Spanish language organized by PROSIS S.A. Bogota, main sponsor of the Conference, on the application of Geoinformation in the broader domain of environmental practical applications, intended for participants from Latin American technical and administrative organizations and public administrations. These workshops had a total of 150 participants.

## 2 The Opening Ceremony

In the Opening Ceremony, representatives of the four partner and guest organizations gave welcome addresses:

- Dr. José A. Lozano, General Secretary of the Colombian Academy of Physical and Natural Sciences, Bogota, Colombia
- Paulo Menezes, ICA Vice-President, Rio de Janeiro, Brazil
- Prof. Dr. LIU Chuang, CODATA Taskgroup on Open Data in/for/with Developing Countries, Beijing, PR China
- Prof. Vladimir S. Tikunov, ICA Commission on Sustainable Geoinformation, Moscow, Russia

## 3 Overview of the Program

The climate change in Colombia was foreseen to have as consequences, a rise of 0.8 C in the continent that will bring a warming in the tropical and seaside regions of the country. Other climatic variables will bring changes in precipitation, more cyclones, increased annual main rain, accelerated glacier retreat, lowering of lake levels and rise in the sea level. A local complex environmental management scenario forecasts a decrease in precipitation in the Pacific regions, over the Andean region and Caribbean regions. A rise in the annual precipitation is expected in the Cordillera, Magdalena and Cauca regions.

For the vegetal classification evolution, the forecast is of a diminution of the Andean and paramo vegetation and a rise of the dry ecosystems, which will lead to a rise of 6% of the national territory.

The presentation on the forming of the spatial data infrastructure in the arctic regions shows that this topic has achieved a high political priority inside the polar research field in Russia and Japan. Very different fragile zones adjacent to the arctic area are facing different sets of priorities discussed in Russia (social, natural and economic, due to gas and oil drilling). The preservation of the cultural heritage of national minorities and the lack of proper juridical management of local authorities, are also very important issues. However, interesting perspectives of local development came from a kind of ecotourism, involving the local cultures and visitors coming to study them. Forthcoming results of the new circumpolar Atlas of Arctic Regions will be linked to geoportals, standards of metadata and cartographical web-services. New developments of mathematical models are needed for evaluating criteria of a sustainable development of the region. It was also suggested to organize more international conferences near to the local people such as the Tchukotka.

In the case of the United Arab Emirates, the GIS approach of evaluating the coastal sensitivity is part of the national master plan. The rapid changes due to the economic development affected also the people culture ecosystem. The east coast is a very sensitive area. A strategy master plan was developed in order to have a

roadmap for future decision making processes. This approach was performed by the connection of spatial data and a growth probability map was created for the most likely situations.

The Salzburg mining urban mobility project, based on the use of electric vehicles, was presented as an important project to reduce the major part of air pollution. Battery capacities, human movement patterns and energy consumption of vehicles were carefully analysed. This study shows that traffic flow and energy consumption follow a regular pattern which is predictable for future states of the road network linked to a reduced energy consumption.

An analysis of the vegetal region in Mexico's Usumacinta region used the Chomnitz forest transition theory. The study used polygons and Kernel's method for measuring the density per unit. The changes in the last twenty years were analysed, and showed that ecological, political and economic factors are all involved. Further studies will benefit from the involvement of indigenous people in a better forest management policy in the framework of global warming.

The Enid studies showed the need for local spatial and geographic information, in order to interact with the political authorities for a proper decision-making. The study area involved 25 communities, for which the spatial location and degree of connectivity in this community is determined. The farming system was considered relative to the technological and commercial aspects.

An agro-ICT backbone was also presented, together with future perspectives of developments in central and South America. This EU funded project, certified by the EU Joint Research Center (JRC), gives concrete indications to farmers via a planning documentation, energy nutrient balance, cost-profit margins, business plan, insurance data and thematic maps. This large EU project involves more than one thousand farmers in Germany, Austria and Slovakia.

Interesting and promising results of Geo 3D map models were presented with specific application results which can be immediately seen and understood by a large public. It was successfully used for the Guimaraes public participation during the consultation of a master plan. This kind of innovative instrument will help towards a better public involvement during complex procedures of long term urban planning.

In Chile, the production of accurate wind maps environmental information was also used successfully for optimizing decision making.

The successful implementation through Web 2.0 technologies, of a collaborative Geo-Citizen approach in Ecuador through the use of the Ushaidi platform on a voluntary basis was discussed with an accurate map of participants.

The Russian study of mapping memorial plants in the historical buildings of the Orthodox Church showed the importance of including the spiritual dimension inside the climate change and sustainability studies, these sensitive aspects of involving local and indigenous people relations to their trees was also noticed as very important by Colombian ecologists in the debate of the presentation.

#### **4 The RISK Session**

The risk session began with the presentation of the Brazilian oil spill mapping project. The oil spill calculation methodology was supported by the International maritime organization (IMO) and the first atlas was made in the Campos Basin Region along the Rio de Janeiro region. One of the main objectives was to identify the most sensitive coastal ecosystems. Strategic, tactical and operational maps were considered and a coastal sensitivity index was created. The project currently has 57 people working on it, and will finish in July 2013.

An innovative aspect of hazard analysis was also developed, taking a better account about the affected health of people and obtaining a better understanding of the psychological factors seen during and after a disaster.

Mental aspects of recoveries and also the inclusion of economic impacts inside disaster curves, will help for a better crisis management.

The managing of complex situations in disaster information is an extremely important issue that involves an optimal management of facts, context, syntax, semantics and pragmatic goals.

## **5 The Risk Panel Discussion**

The Risk Panel Discussion showed that the deep religious feelings of indigenous people relative to tree vulnerability from must also be taken account. Cultural heritage management is an essential part of sustainability and post-disaster management that needs to be integrated in appropriate design tools. A closer link to nature and the benefits of plain common sense was also discussed in the panel. The link to past events such as flooding of the German Elbe river underlines the link with an appropriate prevention strategy for investment and prevision of technical and organizational security measures. Post disaster costs must be better assessed and normalized in order to allow a more efficient financial strategy for financing prevention goals. The ethical issues are part of this complex process and must not be forgotten. These issues, especially useful in developing countries, must be part of the Global Exchange Strategy discussed in the panel. The importance of the sharing of knowledge and experience (such as in the CODATA working groups) was discussed and identified as being crucial for developing countries. Improved forecasting methods for better taking account of the preventive actions and resources needed, are also important, as are precise exchanges on best practices. The knowledge management via digital newspaper analysis, combined with geographical analysis, will be interesting. Changing values of perception of risks with people from different cultures and stakeholders from developing countries was also part of the panel discussion. The Santa-Marta accident just before the conference, involving the Drummond company, in which 500 tons of coal were spilled in the coastal waters, and the ensuing complex conflict between environment and economic development, showed the importance of these topics as discussed during the meeting with the.

## **6 Risk and Environment Communication**

The involvement people and their engagement in environmental and risk situations was the focus of this session of the Conference.

Art and artists have been a source of knowledge of how in ancient times man felt connected to nature and the environment. Contemporary art is now also expressing alternative points of view and perceptions about nature. This kind of art can help to show and transmit feelings of healthy environments, in contrast to the harmful actions against nature, and highlights the natural positive relations to it. Artistic involvement in the environmental issues linked to water pollution and risk perception was originally presented by different forms of sculpture and creation. This kind of art also included the sound dimension and helped people to better work for the environment with their different senses. Three dimensional field guides also helped in a better involvement of the public. How contemporary art related to the environment can improve data mapping was also an aspect discussed. Successful risk communication from the point of view of the people at risk relies on many factors, found by expert opinions and learned experiences. These aspects are related with the communication situation of people prior to, during and after risk events.

A case study about a small rural city in Canada (2000) showed how the complex interactions between systems linked to cultural paradigms of management, scarce and low quality (ineffective) media risk-alerting information and political habits, as well as other factors, can result in clearly harmful situations. In risk management not all is technical and scientific: culture is also a very important point of view management issues linked to the spreading of news and the role of the media were also discussed. Media information alone

in “risk-alerting” situations proved to be inadequate for the people in Walkerton, Canada when the E-Coli contamination of the water supplies occurred.

Participation, involvement and information as crucial activities in Environment were also a theme treated in this session, related to the digital information scenario available now. Digital Public Environmental Observatories used as Virtual Public Arenas and communication channels open a broad field of action, interaction and social construction. Despite the political relevance of open access of data on environmental issues as a democratic principle (Free-Flow of Information), and as factors of confidence and credibility, the access and availability of environmental information in services of public institutions are not just a necessity, or an example of e-governance practices. In addition, in the sense of WEB 2.0 developments, what is needed are sources and fields, “arenas” of the collective definition of environmental problems. Although online communication itself does not generate a network public sphere, the interaction in the Internet of agents (experts) engaged in democratic activity may be contributing to such a public sphere. In this sense some agents are more important than others. A comparative content analysis of information available (accessibility), participation tools and interaction showed how these aspects are expressed. A matrix of results of how governmental observatories contribute to the collective definition of Environmental issues was presented and discussed. Fundamental requirements of how data is be effective were cited (accessible, intelligible, assessable and usable).

## **7 Agro-Information**

A series of contributions related to GIS methods and techniques in the Agro-Domain of applications were presented by Walter Mayer, of PROGIS Software, Villach, Austria. The Agro-Domain is characterized by directly relating the commercial and trade issues to the obvious consequences to environment. While internal issues of farming optimization decision support are key elements of success, the tools for combined reporting on regional or national level are essential for decision making and control of measures decided by government. The connection to weather and climate information - especially concerning heavy rainfall, drought, hail, biological and other risk situations – directly influences population and animal livestock in the consequences of disasters that arise in more or less repetitive timeframes.

## **8 Panel Discussion on Communication**

A panel discussion on how journalists could in future deal with these issues in Colombia followed this presentation, with inputs and proposals for improving the media coverage of environmental and risk issues. Time and a review of previous issues, as well as expertise of journalists and heads of media and their focus on audiences and ratings, are the typical problems of public information and communication on environmental and risk issues. The discussion of social and public communication and information aspects of environmental issues between a scientifically informed group of experts found acceptance from the participants, but without effective communication, their work could not be effective. Joint discussions between communicators, journalists and scientist have to be promoted in these types of scientific conferences.

## 9 General Aspects, Outlook

The CEGeoIC2013 conference met very well its intention to offer a platform for information and communication on a broad international level and thus supported the discussions on further communication and cooperation in a straightforward way. The pleasant atmosphere and service from the hotel COSMOS100, as well as the visits to various tourist and cultural highlights in the city of Bogota were a great assistance to stimulating discussions between participants from all over the world.

The consequences of environmental information for our modern Information Society and its active role in collecting, assessing, and using environmental information have been highlighted in several presentations and discussions. Collaborative and productive users are to be expected on a much broader range of topics and regions. Public “Observatories” can supplement governmental environmental information systems and they are key techniques in situations where no systematic collection and publication of environmental information is yet provided.

A special post-conference meeting of the organizers with President Jaime Rodríguez-Lara and General Secretary Doctor José A. Lozano of the Colombian Academy of Physical and Natural Sciences gave the perspectives of broad and stimulating exchange between scientists, as well as mutual information and communication on strategically important aspects that arise from major international action fields (e.g. UN ISDR – International Strategy of Disaster Reduction, contracts of commerce between European Union and Latin American States etc.).

There was a general consent that CEGeoIC2013 gave a convincing highlight on the relevance of its topics and on the high quality of contributions that could be solicited for presentation and discussion of international science and technology achievements. The organizers were broadly encouraged to continue to realize similar events.

An open eNewslist **LatAmEIC** on Information and Communication on the Environment in Latin America and the Caribbean was installed to facilitate exchange on best practice, documents, events etc. in the English, Spanish and Portuguese languages. Contact Horst Kremers to join this eNewslist or send an eMail to [join-LatAmEIC@kbx7.de](mailto:join-LatAmEIC@kbx7.de)

**The involvement and active participation of all social groups is a requirement for Sustainable Development. The role that Environmental Information and Communication play in order to develop ways to Sustainable Development Processes and Goals is essential as they empower public engagement through access and sharing of meaningful knowledge, opinions, decisions, plans and actions, about their nearest living environments.**

**Through the development of Information and Communication Technologies, environmental information and its communication have rapidly changed and assume huge challenges to approach broadly with effectiveness and precision the diverse environmental interests, issues and problems faced by major groups all over the world.**

## **10 Acknowledgements**

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