for EULARINET WP 2.2

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EULARINET Latin American-European Environment Workshop, November 17-18, 2009, Bogotá, Colombia

Final Report

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I. Introduction

Workshop methodology and elaboration of the report

The Latin American-European Environment Workshop was carried out in the framework of EULARINET, the European Latin American Innovation Networks, on November 17 -20, 2009. The workshop was organized by COLCIENCIAS, CONICYT and DLR within WP 2.2 and hosted by COLCIENCIAS in Bogotá, Colombia.
The two and a half day workshop was attended by 43 participants from 20 different Latin American and European countries. The European Commission was represented through two participants from DG Research and from DG EuropeAid (f*or a final list of participants, please see annex*).

In order to transfer useful information to the workshop participants and to supply background data necessary to be considered in the working groups, a working document" was prepared before the workshop. It was handed out to all participants upon registration, containing

- Final workshop agenda
- Information on past FP projects and calls
- Overview of Work Programme Environment 2010
- Criteria for identifying cooperation topics
- Template for proposals in working groups
- List of participants

as print-outs. All of the above mentioned documents, as well as additional background information such as

- Preliminary proposals for collaboration topics
- State of the Art reports and
- Participant profiles

were supplied on a CD for environmental reasons *(for the working document, please see annex).*

The workshop was opened through a day of presentations and discussions in plenary. Topics included the role of international cooperation in the Seventh Framework Programme of the EU (FP7), the specific Work Programme for Environment within FP7 as well as EuropeAid's regional programmes directed at Latin America. In expert panels, Perspectives of Environmental Research at the European Level and the Dimensions of Cooperation with Latin America were discussed.

The second day of the workshop was dedicated to working within smaller groups. Participants were asked to split up into thematically focused working groups on Water Research and Technologies; on Biodiversity and Natural Resources; and finally Climate Change. The working groups were aimed at identifying the common interests and mutual priorities of Latin American and European Scientists. As a result, each group came up with a number of clearly defined subject proposals for future international research cooperation. In order to assure comparative results, working groups were supplied with a set of criteria and a template for the proposals. The discussions were lead by a moderator and a rapporteur (*for the general methodology, please see annex)*.

In a plenary session on the last day of the workshop, the results of the working groups were presented and discussed before being presented to the European Commission by videoconference and receiving the EC's comments and feedback.

It was agreed upon distributing the proposals to all workshop participants as well as to the EULARINET Consortium for further elaboration, improvement, revision and consolidation before submitting the conclusive and final experts' report to the EC.

Background information

The overall goal of EULARINET is to strengthen the dialogue on Science & Technology (S&T) between Europe and Latin America. The project intends to produce tangible results and to generate a high structural impact. The Workshop on Environment, carried out within EULARINET Work Package 2, "Strengthening participation of Latin America in FP7", is aimed at the identification of mutual research priorities and potentials. The participation of Latin American research institutions does by far not correspond to the existing scientific potential. By identifying common priorities and strengthening the network of scientists from both continents, EULARINET wants to contribute to uncover the significant potential for biregional cooperation in FP7 and to encourage EU-consortia to integrate Latin American partners in their project proposals.

Through dissemination of the workshops' findings, we hope to give input for future multilateral and bilateral S&T related activities in the field of Environment and to promote collaboration. As pressures on the Environment have become a major challenge worldwide, strong international collaboration in environmental research is needed - to mitigate negative effects, to find adaptation strategies and to protect our Earth in the future. The issues at stake require global responses. The EULARINET Latin American-European Environment workshop wants to contribute to this goal.

The time is just right to focus on the Environment and Latin America: The next EU-LAC Summit will take place in May 2010. The title of the summit itself mentions environmental issues as a central subject - "Towards a new stage in the bi-regional partnership: Innovation and Technology for sustainable development and social inclusion".

II. Consolidated Proposals from Working Groups

Through the topics elaborated within the experts´ workshop, we wish to give input to future Work Programmes on Environment. A transversal action within the future Work Programmes aiming at improving collaboration between the specific projects would be welcomed in order to enable better networking and exchange of information, results and knowledge.

Working Group I – Biodiversity and Natural Resources

A. "Development of sustainable management of vulnerable aquatic and island ecosystems"

Target region: Whole of Latin America

Abstract

Develop approaches for sustainable management of vulnerable aquatic and island ecosystems with special emphasis on biodiversity, on local knowledge on biodiversity, and on the creation of incentives (such as schemes for payments for ecosystem services -PES-, linkages to markets, ecotourism, etc.) for

- either rivers and other water-based ecosystems (such as estuaries, coastal shorelines, mangroves, deltas, coral reefs), and with special reference to their biodiversity and buffering capacities
- or island restoration and conservation, including eradication of invasive exotic species and adaptation to climate change

Expected impact and added value

Expected impact is a more sustainable management of those mentioned ecosystems, and especially better protection of the vulnerable coast/shoreline (support to coastal communities, ecotourism, etc.). Added value comes from options for decision makers to select between alternative incentive schemes.

B. "Development of community-oriented sustainable land use systems for vulnerable areas, by making use of local knowledge of (agro-)biodiversity, and by putting adequate incentives in place"

Target region: Whole of Latin America

Abstract

Develop land use systems for vulnerable ecosystems and /or watersheds that make use of local biodiversity and local knowledge on (agro-) biodiversity to foster community (and/or civil society) based sustainable development. One focus of the project should be the creation of incentives (such as schemes for payments for ecosystem services (PES), linkage to markets, ecotourism, etc.), together with and for local stakeholder groups. Experimentation with different such schemes is encouraged. Another focus should be, where applicable, the integration and effective establishment of conservation corridors into land use systems.

The topic may be carried out throughout Latin Americas' (agro-)ecosystems, **AND** / or with a special emphasis on

- either the conservation of high mountain ecosystems (such as glacier areas, páramos, head water areas that are important for the water balance of entire watersheds), their biodiversity and functioning
- or sustainable dryland management, in which case the synergies provided from jointly addressing the two conventions on climate change and desertification (UNFCCC, UNCCD)

Expected impact and added value

Added value comes from better insights into the complexity of sustainable land use systems in highly vulnerable ecosystems that suffer from impacts of global change, and from more in-depth assessments of existing local knowledge on (agro-) biodiversity in different ecosystems.

Impact is expected from better, more informed support to decision makers concerning the selection of incentive schemes regarding nature and resource protection. The provision of a handbook or toolbox should be envisaged.

Impact is also expected from better, more informed support to decision makers concerning the establishment of effective corridors of conservation and for securing important headwater areas that affect downstream areas respecting the use of resources by local communities.

C. "Earth Observation Systems in Latin America"

Target region: Whole of Latin America

Abstract

Develop permanent, simple and cheap observation systems for land and water resources that integrate remote sensing with ground-based methods, in small grids over the continent, to allow monitoring of environmental information needed for policy decisions, following up on and linking them to existing networks. This should include capacity building in the establishment, use and maintenance/management of those observation systems.

Expected impact and added value

Expected impact is that better assessments of the status quo of the natural resource base will become available from more comprehensive but small-scale and reliable observation systems, and in particular a better prediction of vulnerability hot spots; while prioritizing information needed for protective or preventive actions. Added value comes from the training component that increases greater regional capacity for running those systems in Latin America.

D. "Design of multi-stakeholder strategies for pollinator conservation in order to ensure agricultural productivity, local food security, functioning ecosystems, and climate change adaptation"

Target region: Latin America, with potential comparative research with Europe

Abstract
Design of strategies that involve multiple stakeholders in pollinator conservation in order to ensure agricultural productivity, local food security, functioning ecosystems, and climate change adaptation. These strategies will encompass monitoring, ecological relationships, impact assessments for activities which affect pollinator populations, and options to conserve pollinator populations.
This issue is a priority in many areas of Latin America where pollinators constitute a valuable ecosystem service, considerably more cost-effective than artificial pollination methods, and where the decline of pollinator populations, due to land-use change, global change and other factors, poses challenges for agricultural productivity and local food security.
The opportunity exists to learn from European research and management strategies, and to interact with the European scientific and policy community, on the same issue.

Expected impact and added value
Strategies designed which are relevant and appropriate for decision-makers, the research community, agricultural producers and local communities, and which encourage the conservation of pollinators and their ecosystem services.
These strategies will lead to increased agricultural productivity and food security, and the maintenance of ecosystem services.

Working Group II – Climate Change

A. "Understanding, diagnosing and modelling global environmental changes (anthropogenic and climate-induced land-use/land-cover changes) in Latin America and their consequences for global and regional climate change scenarios"

Target Region: Latin America

Abstract

Objectives

- To understand the dynamics of how climate changes and land-use/land-cover changes (including deforestation) in Latin America will impact regional climates and socio-economic activities
- To evaluate the impact of global environmental changes in Latin America onto the global climate change scenarios
- To assess regional countries toward integrated regional land-use policies

Methodologies

- Use of existing hydroclimate and land-use/land-cover data
- Evaluation of how to improve the existing observation networks
- Making use of existing related international projects
- Making-use and improvement of coupled land-use/atmosphere dynamic models at regional and global scales

Importance

- Deforestation and intensification of land use is a strong contributor to greenhouse gas emissions with regional and global consequences
- Assessing the impact of land-use/land-cover changes on global climate has implications for international negotiations on climate change
- Developing high-resolution models and scenarios is a necessity for policy-makers and other stakeholders in order to improve decision-making at different levels

International aspects

- It will foster mutual knowledge transfer between Europe and Latin America (Europe can help building modeling capacities in Latin America and Latin America will feedback with local knowledge onto the improvement of regional and global models)
- It will strengthen collaborations and research networks among the Latin American countries
- It will promote coherent and consistent transnational policy guidelines

Expected impact and added value

- Improved observation/knowledge of surface-atmosphere interaction processes and their modelling
- Improved tools related to land-use/land-cover change for decision makers (vulnerability assessment, mitigation and adaptation)
- Quantified impact of Latin America LULC onto global climate (international negotiation)
- Broader/stronger multidisciplinary scientific community on global changes in Latin America.

- The coordinated global and regional scenarios should be reference scenarios for other international (including European) projects addressing impact studies and adaptation/mitigation strategies in Latin America.

B. "Climate change impacts and adaptation strategies in highly climate-sensitive regions in Latin America using an integrated approach (social, ecological and economic)"

Target region: Mountain regions of Latin America including Andes and Sierra Madre.

Abstract
Mountain regions in Central and South America have fragile interdependent ecosystems highly susceptible to changes in climate. These ecosystems are key for local human communities and for larger population centers downstream as they provide important resources as water and inputs for sound agricultural systems.
The objectives are to increase our understanding of the changes of the physical processes such as the hydrological cycle which will have direct impacts on the living conditions of local and downstream populations and their economies.
Priority shall be given to multidisciplinary and trans-sectorial approaches aiming at designing adaptation and mitigation policies using participatory methodologies. Studies of the most representative ecosystems and land-uses will be selected to investigate three main components through an integrated analysis: (1) Ecosystem, (2) Social/Community and (3) Local/Regional Economy and the interactions among these components which should complement each other.
Similar problems are shared among various countries and due to the complexity of the problem, international cooperation among Latin American and European countries will strengthen south-south collaboration and the transfer of knowledge between Latin America and Europe. Solutions could then be shared in various countries.

Expected impact and added value

- Enhanced understanding of the ecological processes in mountain regions and related basins as a whole
- Linking processes at the lower and upper basins
- Better grounds for the design of policies to mitigate impacts due to climate change on:
  - -Social structures of the population living and depending on the ecosystem and dynamics of the local economies
  - -Coordinated land use policies among countries sharing catchment basins
- Scientific and institutional strengthening of these countries to adapt and to participate on the new land use policies to accomplish targets of present and new international environmental agreements
- Development of social and scientific networks and infrastructure for future collaboration projects
- It will promote coherent and consistent transnational policy guidelines

C. "Climate change impact on coastal and marine areas of Latin America: Participative adaptation strategies useful to sustainable development and generation of tools to policy makers"

Target region: Coastal area of Latin America (including Pacific upwelling systems and Caribbean zone

Abstract
Coastal areas concentrate the major population centers and the economic activities. The objectives are to evaluate the vulnerability of the coastal and marine areas and the fisheries and others socioeconomic activities to impact of temperature and sea level changes related to climatic change; To improve participative strategies to adaptation to climate change in selected coastal areas; To generate tools and appropriate information to improve stakeholder's decisions at local and regional level.
Increase our understanding of mechanisms and processes in coastal environments and near shore marine areas as well as the hydrological cycle in coastal basins.
Priority shall be given to multidisciplinary and trans-sectorial approaches aiming at designing adaptation and mitigation policies using participatory methodologies. Studies of representative coastal and marine ecosystems will be selected to investigate three main components through an integrated analysis: (1) Ecosystem, (2) Social/Community and (3) Local/Regional Economy and the interactions among these components which should complement each other.
Similar problems are shared among various countries and due to the complexity of the problem, international cooperation among Latin American and European countries will strengthen south-south collaboration and the transfer of knowledge between Latin America and Europe. Solutions could then be shared in various countries.

Expected impact and added value

- Enhanced understanding of the ecological processes in coastal and marine areas and related basins as a whole
- Linking processes in coastal and marine environments
- Better grounds for the design of policies to mitigate impacts due to climate change on:
  - -Social structures of the population living and depending on the ecosystem and dynamics of the local economies
  - -Coordinated coastal area use policies among countries sharing basins
- Scientific and institutional strengthening of these countries to adapt and to participate on the new coastal and marine resources management policies to accomplish targets of present and new international environmental agreements
- Development of social and scientific networks and infrastructure for future collaboration projects
- It will promote coherent and consistent transnational policy guidelines

D. ***"Impact of global environmental changes (climate, land-use, population) on human health in urban environment including air quality and vector-borne diseases (dengue and yellow-fever)"***

Target region: Large urban agglomerations in Latin America.

Abstract

Objectives

- To understand the processes of interactions of urban agglomerations (increase of population and urban sprawl) with their hinterland (land use/land-cover) and between the agglomerations themselves (communication, transport)
- To assess, in a future climate, changes in atmospheric processes such as meteorological dynamics, temperature increase, and their consequences on secondary pollutant production and the growth and spread of Dengue and Yellow fever mosquitoes in Latin America Cities
- To assess synergetic effects of greenhouse gas and air pollution reduction policies and their impact on health
- To investigate regional coherent actions to reduce the spread of vector-borne diseases and the development of early-warning systems

Methodologies

- Climate-chemistry coupled dynamical downscaling of global climate scenarios in high spatial and temporal resolutions
- Epidemic dynamic modeling in urban areas including city interactions
- Social studies (mosquito habitat, vulnerability of social groups, etc)

Importance

- Air pollution in cities has a severe impact on the health and welfare of the population and ecosystem
- Dengue and yellow-fever epidemics are increasing in Latin America, leading for example for dengue to hemorrhagic mortal fever
- Providing decision-support tools for policy-makers and other stakeholders

International aspects

- It will foster mutual knowledge transfer between Europe and Latin America (Europe can help building modeling capacities in Latin America and Latin America will feedback with local knowledge onto the improvement of regional and global models)
- It will strengthen collaborations and research networks among the Latin American countries

Expected impact and added value

- Developing and applying a methodology to assess the influence of climate change in Latin American cities as a basic prerequisite for comprehensive health impact studies. Knowledge transfer and capacity building
- Generation of climatic, air quality and epidemics regional information for decision makers, regional scales early warning alert scheme for air quality, epidemics and extreme events

Working Group III – Water Research and Water Technologies

A. *"Development of alternatives for water management to adapt to climate change impacts in Latin American context"*

Target region: Latin America incl. Central America/Mexico (sound coverage of characteristic regions)

Abstract
Main objective

- Development of alternatives for water management to adapt to climate change impacts in the Latin American context

Specific objectives

- Integrated management of water resources achieving sound data base and applying a watershed perspective (quality and quantity)
- Development of watershed based methodology for deficit analysis
- Addressing the issues related to key sources of pollution (industry, agriculture, cities, natural)
- Justification of integrated water resources management methods to Latin American watersheds
- Improved management of transboundary water systems (groundwater & surface water bodies)
- Investigate administrative and policy requirements for the implementation of adapted water management methods under climate change conditions

Importance of topic

- Integrated approaches involving urban and rural key stakeholders
- Identification of legislation and administration gaps
- Exchange of experiences in the field of integrated water resources management between EU and Latin America, and between Latin America countries
- Building upon former FP6 projects (CAMINAR, SWITCH, WAFLA, EPIC FORCE, CLARIS)

Importance of international cooperation

- Establish and strengthen a sustainable network of Latin America research institutes
- Improve collaboration between Latin American countries and Europe on the administrative and policy levels
- Identify and analyze traditional natural based methods of water management with potential uses for EU application and in other parts of the developing and developed world

Expected impact and added value

- Addressing the Millennium Development Goals (focus: improvement of sanitation, gender mainstreaming)
- Demonstrate transparent methodologies for assessment of water quantities
- Raising awareness for water issues at all levels from local communities to policy makers
- Reliable data on available water resources and methods for their management
- GIS based presentation of large scale water quality trends

- Capacity building in Latin America and Europe regarding modern tools for water management
- Improved governance of water management to adapt to climate change
- Inventory of traditional methods of water management in Latin America
- Investigation and development of alternative water management methods which will benefit for Latin America, Europe and other parts of the world

B. *"Adapted technologies for water management and water scarcity mitigation in Latin American context"*

Target region: Latin America incl. Central America/Mexico (sound coverage of characteristic regions)

Abstract

Main objective

- Develop methodologies and technologies for water pollution control and safe water supply under water scarcity conditions in LA

Specific objectives

- Assessment of the status of water supply and sanitary technologies application in Latin America
- Investigate possibilities of adapted technologies based on natural and traditional methods
- Develop new adapted technologies for rural water supply and sanitation
- Develop new adapted technologies for water management under water scarcity conditions (e.g. water reuse, managed aquifer recharge, water cascading, and desalination)
- Capacity building in application of traditional and new treatment technologies (institutional development, human resources development, research)
- Development of Decision Support System for selection of suitable technologies at regional perspective

Importance of topic

- Integration of community based approaches for improved quality of life
- Raising awareness for water issues at all levels from local communities to policy makers
- Addressing water supply under water scarcity conditions
- Solutions for improvement of water supply and sanitation in rural areas

Importance of international cooperation

- Exchange of experiences in the field of sustainable water management between EU and Latin America, and between Latin American countries
- Establish and strengthen a sustainable network of LA and international research and technology transfer institutions
- Improve collaboration between Latin American countries and Europe on water management

- Identify and analyze traditional natural based methods of water management with potential uses in other parts of the developing and developed world

Expected impact and added value

- Addressing the Millennium Development Goals (focus: improvement of sanitation, improvement of water supply under water scarcity conditions, gender mainstreaming)
- Reduction of water borne diseases
- Reduction of children mortality
- Improved quality of life
- Demonstration of available traditional water management methods
- DSS for selection of suitable technologies at regional perspective