



## **D5.1 Report on the Biodiversity and Climate change area in the bi-regional STI cooperation addressing societal challenges**

**ALCUE NET**

Latin America, Caribbean and European Union Network on Research and Innovation

**Latin America, Caribbean  
and European Union**

**Network on Research and Innovation**

**EU-CELAC SOM Working Group on Biodiversity and Climate Change**  
Colombia – France

**ALCUE NET: Latin America, Caribbean and European Union Network on Research  
and Innovation**

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## 1 Objective of the thematic report

The main objective of this report is to contribute to the overall objectives of ALCUE NET through the identification of key topics, in climate change and biodiversity, for research and innovation cooperation between the two regions. This report contains the main conclusion attained through the dialogue between scientists, stakeholders and experts in those topics, from the European Union (EU) and Latin American and Caribbean (LAC) countries. Also, this report will serve as a Concept Note, including recommendations, regarding future research priorities to create new synergies between ALCUE NET and other existing networks involved in biodiversity and climate change area. The final objective is to promote coordinated actions and to avoid overlaps in Biodiversity and Climate Change research in order to strengthen the bi-regional sustainable dialogue on Science and Technology between European (EU) and Latin American and Caribbean (LAC) countries.

## 2 Bi-regional Cooperation Activities in the Biodiversity Area

### Thematic area background in Latin America, Caribbean and the European Union

As scientific publications are the product of collaboration among researchers and institutions, they may give an overview on research network structure and dynamics. With the aim of documenting bi-regional research collaboration at the interface between Biodiversity and Climate change, we performed a literature survey in Web of Science of publications involving authors from European Union (EU), Latin America and Caribbean (LAC) between 2003 and 2013. We found a total of 411 publications with a constantly increasing number of publications over the past decade.

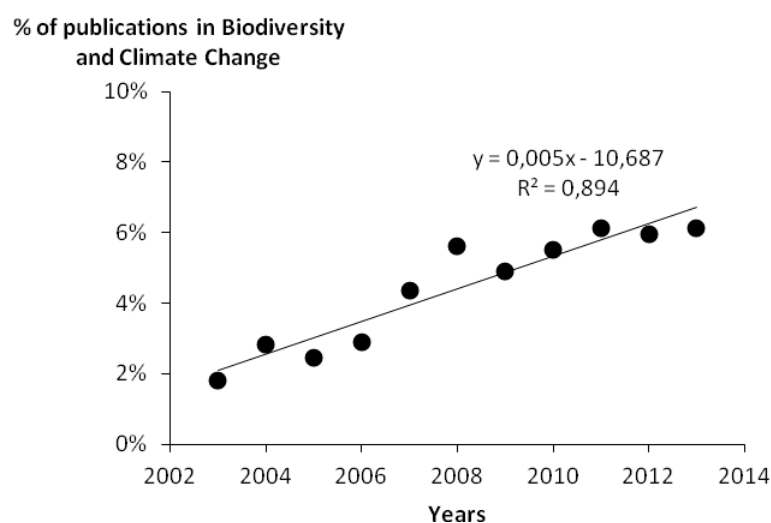


Fig. 1. Evolution of scientific cooperation between Latin America and the Caribbean and European Union during the last decade in Biodiversity (black), Climate change (white) and Biodiversity and Climate change (grey).

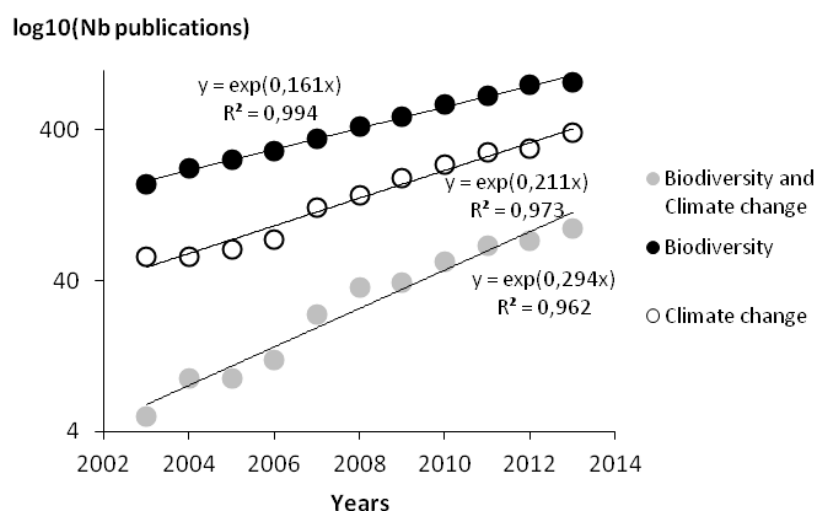


Fig. 2. Percentage of publications in cooperation combining Biodiversity and Climate change in all publications over the past decade.

The main scientific themes arising from our search were “Tropical Diseases & Health”, “Fisheries, Land Use & Resources”, “Past & Evolution”, “Ecosystem functioning” and “Conservation”. While most research was performed in Latin America and Caribbean territories a few publications had their study area located outside Latin America and Caribbean territories.

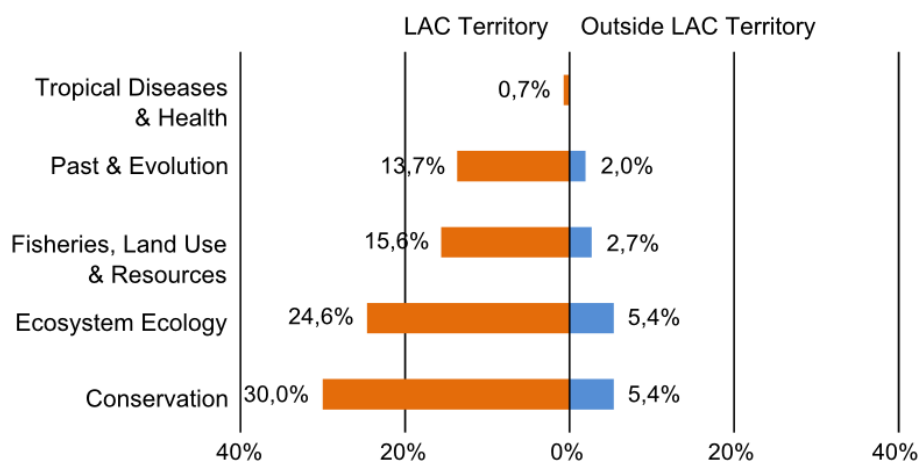


Fig. 3. Percentage of publications per theme where studies have been performed on or only outside Latin America (orange) and Caribbean territories (blue).

The publication network analysis revealed a well interconnected bi-regional cooperation between EU-LAC, with England, Brazil, Spain and France being the main countries involved in the cooperation in both regions.

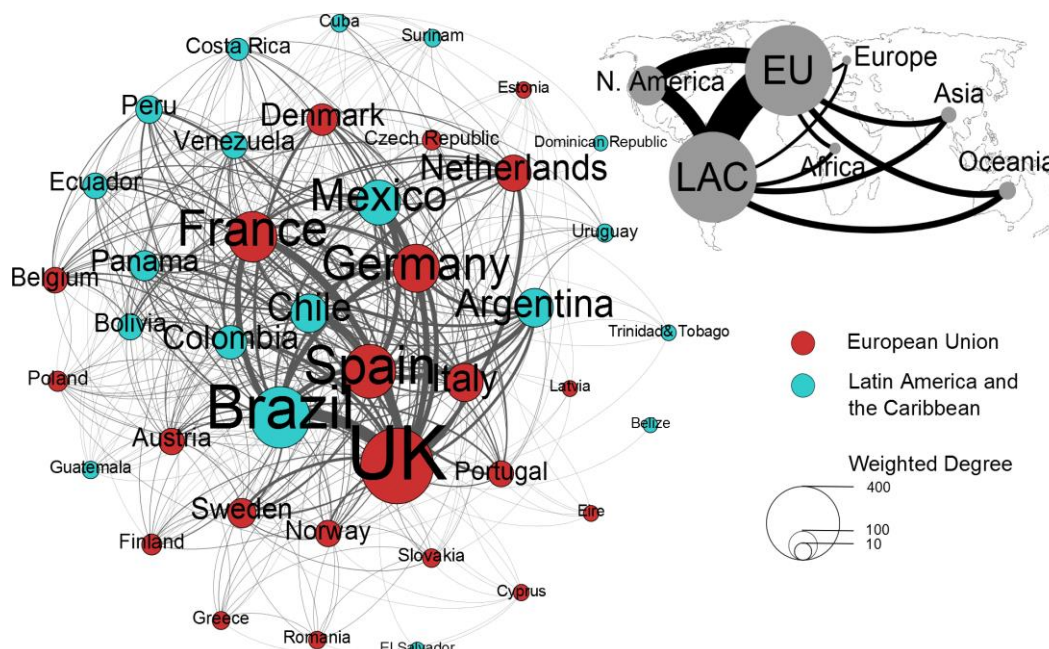


Fig. 4. Cooperation network between European Union, Latin America and the Caribbean (EULAC). Top right: EULAC Network and other partners. Main graph : EULAC Network. The Weighted Degree is the number of countries to which a country is linked, weighted by the number of publications represented by each link.

Some countries like Italy and Cuba were particularly efficient in promoting inter-countries collaborations within EU and LAC, respectively.

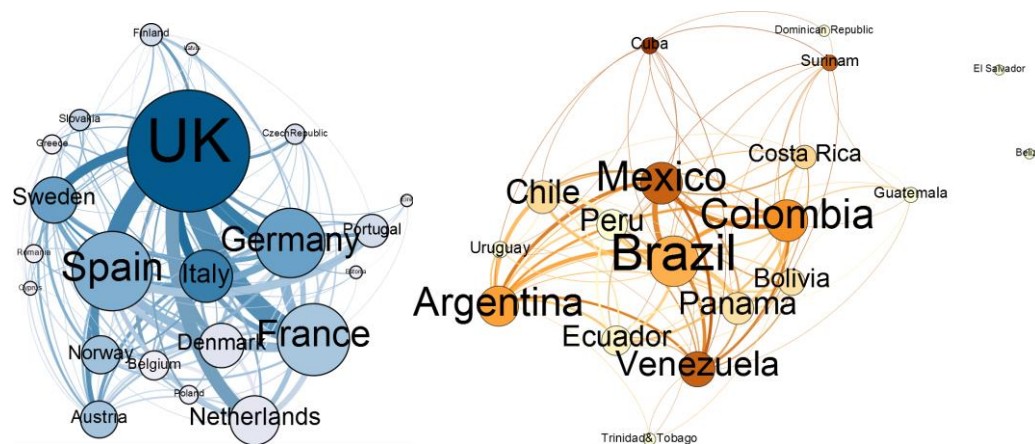
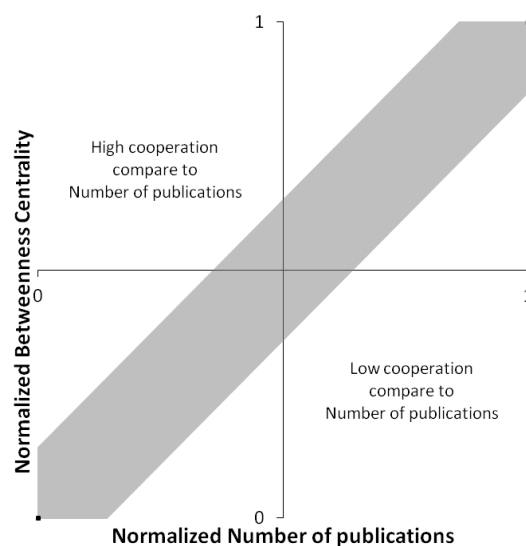


Fig. 5. Inter-regional network in EULAC cooperation. Left: European Union, right: Latin America and the Caribbean. Node size = proportional to Weighted Degree. Node color = proportional to Betweenness Centrality. The Betweenness Centrality indicates how a country acts as a bridge with other countries in a network.

In order to interpret how countries contribute to the cooperation network, we produced a graph comparing an indicator of regional cooperation and EU-LAC scientific production. The average expected cooperation regarding the number of publication is represented as a grey large line.





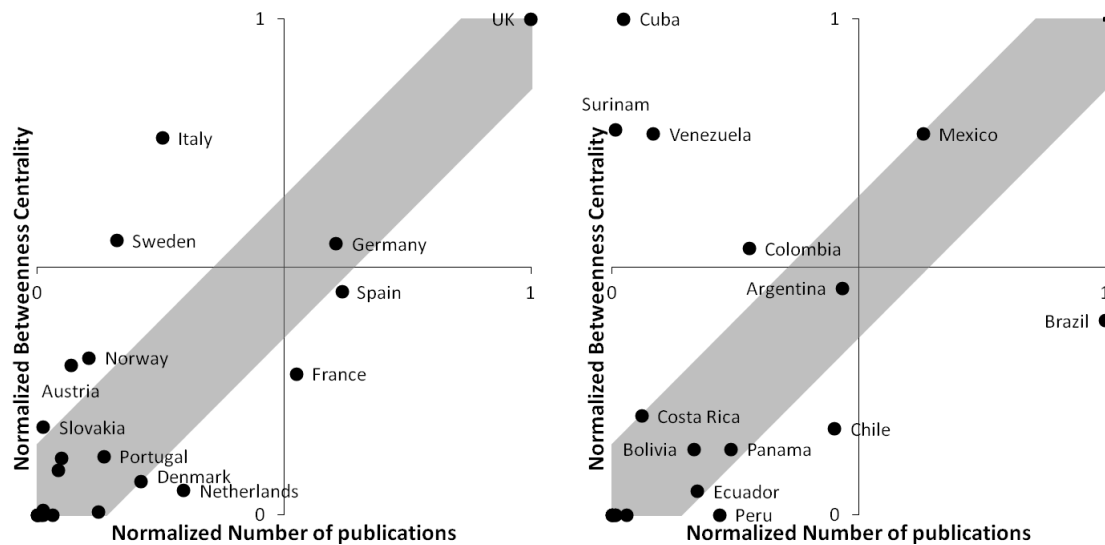


Fig. 6. Cooperation index in the regional network (Normalized Betweenness Centrality) vs Number of publications in bi-regional cooperation. Top: Interpretation graph. Bottom left: European Union, right: Latin America and the Caribbean.

### Political framework: EU-CELAC Senior Official Meetings (JIRI), EU-CELAC Summits (Action Plan 2013-2015)

The working group on biodiversity and climate change is led by Colombia and France and includes Argentina, Peru, Uruguay, Panama, Mexico, and Costa Rica for LAC participants and also Finland, Spain and the EU Commission for the EU participants. The last SOM working group on biodiversity and climate change meeting was held in Santa Marta on 6<sup>th</sup> of March 2014, following the ALCUE NET thematic workshop on biodiversity and climate change. The meeting included participants and observers from Argentina, Chile, Colombia, Mexico, Uruguay, Belgium, Spain, Finland and France.

Several steps were suggested during the SOM in 2013, to enhance the bi-regional cooperation in biodiversity and climate change and to build on the synergies existing between different related networks (i.e.: ALCUE NET, ERA-NET LAC and ENSOCIO-LA) including:

- Observatory and mapping activities to identify key actors from different sectors;
- Development of policy brief on the EU-CELAC state of the art joint projects and initiatives on climate change, resource efficiency and raw materials (ENSOCIO-LA project);
- Implementation of a common platform for the analysis of good practices and information sharing in the EU-LAC region;
- Assessment of national and regional assets and capacities for bi-regional research activities;
- Elaboration of capacity building programs (doctoral and post-doctoral exchanges) as well as student and research mobility programs.

Furthermore, a workshop, called “*Mitigation and adaptation measures to reduce the impact of climate change and achieving the sustainable use of biodiversity*” and held in 2011 in Manizales, resulted in the identification of 24 EU-CELAC areas of common interest, of which 5 stemmed from a survey addressed to EU-LAC STI-related institutions and ministries, in July 2012. These areas have been enumerated during the ALCUE NET thematic workshop on biodiversity and climate change in Santa Marta (4-6 March 2014) to inform discussion on the identification of three priority topics for future joint activities.

Three topics of common interest on biodiversity and climate change have emerged from the Santa Marta workshop. These are covered in part 3 of this report. These topics will serve as a basis for the development of future joint activities and in particular as recommendations to the ERA NET-LAC, for future joint calls. They will also be developed taking into consideration other networking and funding opportunities provided by trans-national initiatives (e.g.: Belmont Forum, BiodivERSA2 etc...). In addition, the Santa Marta workshop resulted in the definition of a road map for future networking activities, involving bi-regional actors and focusing on the development of the three topics through the definition and implementation of Observatory/Mapping, Capacity building and Innovation activities ([see part 2.3. of this report](#)).

### EU framework programme and past experiences

Projects funded under FP6 and FP7 EU Framework programme are compiled on CORDIS website, which is identified as “the European Commission's primary public repository and portal to disseminate information on all EU-funded research projects”. From this database, 16 projects including EU and LAC countries and with objective containing “biodiversity” and “climate change” key words were extracted and have been listed in the table below:

| ACRONYME            | PROJECT TITLE                                                                                                   | FP6/<br>FP7 | WEBSITE                                                                         |
|---------------------|-----------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------|
| <b>ALARM</b>        | Assessing LArge-scale environmental Risks with tested Methods                                                   | FP6         | <a href="http://www.alarmproject.net">http://www.alarmproject.net</a>           |
| <b>CENSOR</b>       | climate variability and el Niño southern oscillation: implications for natural coastal resources and management | FP6         | <a href="http://www.censor.name">http://www.censor.name</a>                     |
| <b>PAN-AMAZONIA</b> | Project for the Advancement of Networked Science in Amazonia                                                    | FP6         |                                                                                 |
| <b>EU-SOL</b>       | High Quality Solanaceous Crops for Consumers, Processors and Producers by Exploration of Natural Biodiversity   | FP6         |                                                                                 |
| <b>MUGIL</b>        | Main Uses of the Grey mullet as Indicator of Littoral environmental changes                                     | FP6         | <a href="http://www.mugil.univ-montp2.fr/">http://www.mugil.univ-montp2.fr/</a> |
| <b>LUPIS</b>        | Land use policies and sustainable development in developing Countries                                           | FP6         |                                                                                 |
| <b>GRAND</b>        | GRAND GOOS Regional Alliances Network Development                                                               | FP6         |                                                                                 |
| <b>FORCE</b>        | Future of Reefs in a Changing Environment (FORCE): An                                                           | FP7         | <a href="http://www.force-project.eu/">http://www.force-project.eu/</a>         |

|                   |                                                                                                                                 |     |                                                                     |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------|-----|---------------------------------------------------------------------|
|                   | ecosystem approach to managing Caribbean coral reefs in the face of climate change                                              |     |                                                                     |
| <b>ENSOCIO-LA</b> | ENSOCIO-LA: Strategic, Sustainable R&I Cooperation with Latin America (Climate Action, Resource Efficiency and Raw Materials)   | FP7 | <a href="http://www.ensocio-la.eu/">http://www.ensocio-la.eu/</a>   |
| <b>ROBIN</b>      | Role Of Biodiversity In climate change mitigation                                                                               | FP7 | <a href="http://robinproject.info">http://robinproject.info</a>     |
| <b>COMET-LA</b>   | COmmunity-based Management of EnvironmenTal challenges in Latin America                                                         | FP7 | <a href="http://www.comet-la.eu">http://www.comet-la.eu</a>         |
| <b>PRACTICE</b>   | Prevention and restoration actions to combat desertification. An integrated assessment                                          | FP7 | <a href="http://practice-netweb.eu/">http://practice-netweb.eu/</a> |
| <b>BIOVEL</b>     | BioVeL - Biodiversity Virtual e-Laboratory                                                                                      | FP7 | <a href="https://www.biovel.eu/">https://www.biovel.eu/</a>         |
| <b>4D4LIFE</b>    | Distributed dynamic diversity databases for life                                                                                | FP7 | <a href="http://www.4d4life.eu/">http://www.4d4life.eu/</a>         |
| <b>GEOCARBON</b>  | Operational Global Carbon Observing System                                                                                      | FP7 | <a href="http://www.geocarbon.net/">http://www.geocarbon.net/</a>   |
| <b>FUME</b>       | Forest fires under climate, social and economic changes in Europe, the Mediterranean and other fire-affected areas of the world | FP7 | <a href="http://www.fumeproject.eu/">http://www.fumeproject.eu/</a> |

There are 7 projects from FP6 and 9 from FP7 involving, in total, 23 EU and 13 LAC countries. These projects were/are mainly coordinated by United Kingdom.

Tab. 1. Number of projects per coordinating country. Total = 16 projects

| Coordinator    | Number of projects |
|----------------|--------------------|
| United Kingdom | 5                  |
| Spain          | 3                  |
| France         | 2                  |
| Germany        | 2                  |
| Netherlands    | 2                  |
| Italy          | 1                  |
| Malta          | 1                  |

Under each framework programme, projects are sorted by sub-category. The sub-category “Environment” of category “Cooperation” in FP7 is the most important for “Biodiversity and Climate change” thematic.

Tab. 2. Number of projects per category as defined for each EU framework programm

| Category            | Number of projects |
|---------------------|--------------------|
| FP7-ENVIRONMENT     | 7                  |
| FP6-SUSTDEV         | 4                  |
| FP6-INCO            | 2                  |
| FP6-FOOD            | 1                  |
| FP7-ICT             | 1                  |
| FP7-INFRASTRUCTURES | 1                  |

Each project is defined by keywords sorted in two categories: thematic areas and working areas. The main thematic is “Environmental protection”, where 70% of the 16 projects are concerned.

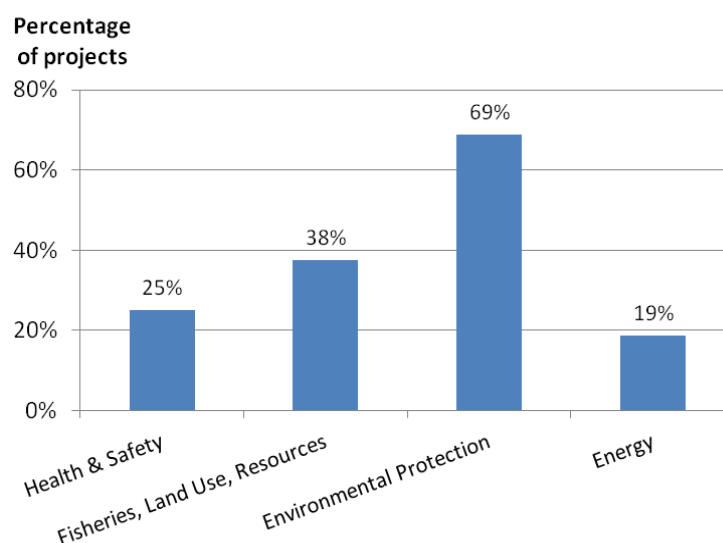


Fig. 7. Thematic areas covered by the 16 projects on “Biodiversity and Climate change” recorded in CORDIS.

The working areas are quite evenly distributed between “Cooperation”, “Scientific Research”, “Capacity building” and “Policies”.

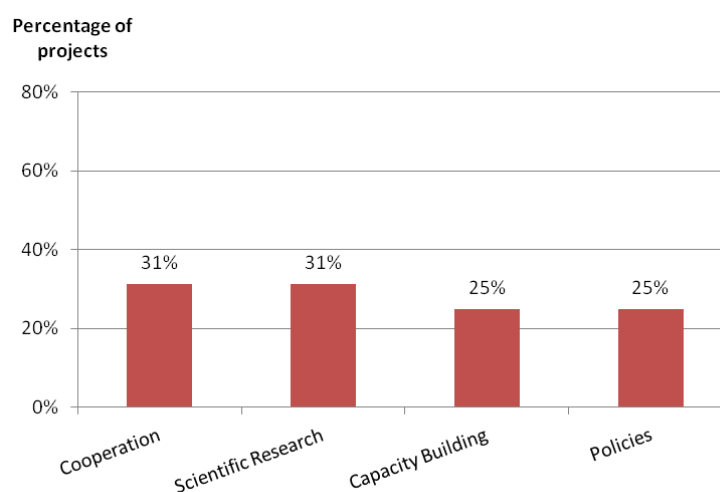


Fig. 8. Working areas covered by the 16 projects on “Biodiversity and Climate change” recorded in CORDIS.

The 7 projects from FP7-ENVIRONMENT represent a total cost of 39 204 958 €. The European Union contribution represents about 77% (30 134 853 €) of this overall amount.

Within the framework of program coordination of research activities, there is a specific scheme called ERA-NET, which aims to develop and strengthen the coordination of national and regional research programmes. Among the 7th Framework Programme, three ERA NETs have been funded under the

thematic “Environment (including climate change)”, with a specific focus on biodiversity or climate change research:

- BiodivERSA2: Cooperation and shared strategies for biodiversity research programmes in Europe
- CIRCLE-2: Climate Impact Research and Response Coordination for a Larger Europe - Science meets Policy
- SEAS-ERA: Towards integrated European marine research strategy and programmes

However, the combination of the biodiversity and the climate change fields of research is only partially covered by the strategic priorities of these thematic ERA-NETs. In addition, cooperation with LAC countries has not yet been notified within their geographical scope.

Nevertheless, in parallel, the ERA NET-LAC, which is a network including EU countries and CELAC, has been implemented to improve bi-regional joint innovation and research activities, including both biodiversity and climate change fields.

## **Towards Horizon 2020**

Among its three key pillars (Excellent science, Industrial leadership, Societal challenges), Horizon 2020 provides several tools of interest to the international cooperation such as collaborative projects, Marie Skłodowska-Curie actions, ERC grants, COST research networks, actions for the opening of research infrastructures to the international level, and specific policy support measures in the international cooperation field. This report emphasizes on some of these tools that are of particular interest to the EU-LAC cooperation, and more specifically towards biodiversity and climate change research.

- Excellent Science Pillar of Horizon 2020:

*Marie Skłodowska-Curie Actions* (MSCA) provide opportunities for training and career development. MSCA include several actions open to the international cooperation, where the participation of EU and LAC academic and non-academic organizations involved in the biodiversity and climate change field could be relevant:

- Innovative Training Networks (ITN): Doctoral and initial training
- Individual fellowships (IF): Support for experiences researchers undertaking international and inter-sector mobility
- Research and Innovation Staff Exchange (RISE): International and inter-sector cooperation through the exchange of staff
- Co-funding of programmes (COFUND): Co-funding of regional, national and international programmes (doctoral programmes, fellowship programmes)

*Research infrastructures* (including e-infrastructures): This part aims at ensuring access to world-class facilities. It provides opportunities in the field of biodiversity and climate change research, but with a more transversal approach in relation to data management, transfer of knowledge, interoperability of data etc...

- Societal challenges Pillar of Horizon 2020

This pillar is divided into seven societal challenges. The societal challenge “*Climate action, environment, resource efficiency and raw materials*” is of particular interest to biodiversity and climate change research, although attention has also to be paid on the six other challenges (e.g.: *Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the bioeconomy*) where other opportunities could emerge.

- *Climate action, environment, resource efficiency and raw materials:*

The objective is to achieve a resource efficient and climate change resilient economy and a sustainable supply of raw materials, in order to meet the needs of a growing global population within the sustainable limits of the planet’s natural resource. Example of call from the Work programme 2014-2015: “Growing a low carbon, resource efficient economy with a sustainable supply of raw materials”

- Coordinating and supporting raw materials research and innovation (SC-5-13-2014/2015)
- Coordinating and supporting research and innovation in the area of climate action, environment resource efficiency and raw materials (SC5-19-2014/2015)

### 3 Cooperation Actions and instruments: Road Map for implementation

| Action                  | Activity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Work progress                                                                                                                                                                                                                                        | Instruments                                                                                                                                                                                                                                                 | Indicators + Impact                                                                                                                                                                                                                                |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Scientific areas/topics | <p>Identification of three topics of common interest to be recommended to the EU-CELAC SOM for a first ERA NET-LAC joint call:</p> <ul style="list-style-type: none"> <li>Biodiversity assessment and monitoring - Improving baseline distribution data and compatibility with climate datasets</li> <li>“Observatories network” - Alignment of existing infrastructures and information platforms</li> <li>Ecosystem-based adaptation and resilience</li> </ul> <p>Creation of a group of experts appointed by ALCUE NET partners, to monitor the development of topics and preparation of events and joint activities</p> <p>Adjustment and development of topics for the launch of joint activities, including ERA NET-LAC joint calls (2014 / 2015)</p> | <p>Workshop in Manizales (Sept 2011)</p> <p>Launch of a survey addressed to EU-LAC STI-related institutions (July 2012)</p> <p>Thematic workshop in Santa Marta (March 2014)</p>                                                                     | <p>EULARINET<br/>ALCUE NET<br/>ERA NET-LAC</p> <p>EU-CELAC SOM working group on biodiversity and climate change</p> <p>Group of experts</p> <p>Potential instruments for implementation:<br/>ERA NET-LAC<br/>H2020<br/>other trans-national initiatives</p> | <p>Interested research and funding organizations involved in ERA NET-LAC joint calls and Horizon 2020 research projects</p> <p>launch of bi-regional / trans-national joint calls on biodiversity and climate change through other instruments</p> |
| Observatory/ Mapping    | <p>Definition of the bi-regional cooperation landscape in biodiversity and climate change research - Assessment of strengths and weaknesses</p> <p>Identification of key actors, institutions, initiatives and networks interested or involved in bi-regional cooperation</p> <p>Analysis of research programs / strategies and funding opportunities for the EU-LAC research cooperation in biodiversity and</p>                                                                                                                                                                                                                                                                                                                                           | <p>Bibliometric analysis on bi-regional collaboration at the interface between biodiversity and climate change - see summary in part 1.a. of this report.</p> <p>Analysis of EU-LAC thematic projects partners databases - short listed projects</p> | <p>ALCUE NET<br/>ENSOCIO-LA</p>                                                                                                                                                                                                                             | <p>Appropriate information provided to program managers and researchers about the bi-regional cooperation on biodiversity and climate change state of the art, niches and opportunities</p>                                                        |

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                         |                                                                                                                                                                                                                                                    |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   | climate change - Identification of niches and gaps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>on climate action, resource efficiency and raw materials assessment</p> <p>Survey of EU-CELAC partners research organizations to consider key actors in funding and programming biodiversity and climate change research (June-Oct 2014)</p>                                                                                                                                                                                                               |                                                                                                                         |                                                                                                                                                                                                                                                    |
| Capacity Building | <p>Facilitation of the transfer of knowledge and good practices between EU and LAC stakeholders and scientist</p> <p>Identification of European technology platforms, Environmental NGOs, research groups, and funding agencies interested in joining bi-regional projects on biodiversity and climate change.</p> <p>Exploration of opportunities to develop EU-CELAC doctoral and training programmes and other research collaborations related to biodiversity and climate change research (Marie Skłodowska-Curie actions, twin labs...)</p> | <p>Thematic workshop in Santa Marta (March 2014)</p> <p>Identification of key actors and initiatives to be invited in future meetings and workshops planned in 2014 – 2015 ( i.e. CESAB: Centre for Synthesis and Analysis for Biodiversity Research to foster a better use of existing data to focus on topic 2: Observatories network)</p> <p>Analysis of H2020 opportunities for biodiversity and climate change research activities (to be continued)</p> | <p>ALCUE NET</p> <p>Brainstorming during workshops</p> <p>Successful initiatives highlighted (CESAB, BiodivERsA...)</p> | <p>Proposals on doctoral programmes (H2020)</p> <p>Building of bi-regional research consortia in biodiversity and climate change</p> <p>New commitment of research organizations / labs / enterprises in bi-regional cooperation in that field</p> |
| Innovation        | Analysis of regional innovation framework conditions in the field of biodiversity and climate change, and explore good practices and possible approach to foster public-private partnerships                                                                                                                                                                                                                                                                                                                                                     | Preparation of a bi-regional conference in Cartagena in 1 <sup>st</sup> semester of 2015 with the support of                                                                                                                                                                                                                                                                                                                                                  | <p>ALCUE NET</p> <p>Successful initiatives highlighted</p>                                                              | New partnerships involving private and public actors in biodiversity and climate change                                                                                                                                                            |



|  |                                                                                                  |                                                                                                                               |  |       |
|--|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|--|-------|
|  | Creation of a chair between the two regions involving enterprises linked to environmental issues | FCT. (Portugal has demonstrated a substantial experience in developing public-private initiatives in the environmental field) |  | field |
|--|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|--|-------|

| Annual Work Plan                                                                                                                                                                                                                                                                                                                                                                                                                            |                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Activities                                                                                                                                                                                                                                                                                                                                                                                                                                  | Timeline                   |
| Appointment of a group of experts, to support the development of topics and preparation of events and other joint activities                                                                                                                                                                                                                                                                                                                | May 2014                   |
| Development of the three topics identified during Santa Marta workshop on biodiversity and climate change, based on a consultation of experts. The results will be used to improve the formulation of topics which will be provided to the ERA NET-LAC prior to the meeting with funding agencies                                                                                                                                           | May 2014                   |
| Regional workshop in Marseille: <ul style="list-style-type: none"> <li>to identify key actors interested in joining bi-regional projects</li> <li>to identify opportunities for bi-regional cooperation in Horizon 2020 (for biodiversity and climate change research)</li> <li>to focus on the improvement of observatories network (topic 2) – visit of the CESAB: centre for synthesis and analysis for biodiversity research</li> </ul> | October 2014               |
| ERA NET-LAC Joint Calls                                                                                                                                                                                                                                                                                                                                                                                                                     | November 2014              |
| Bi-regional Conference in Cartagena to analyze regional innovation framework conditions in the field of biodiversity and climate change, and explore good practices and possible approaches to foster public-private partnerships. With the support of FCT                                                                                                                                                                                  | To be defined (early 2015) |
| Completion of the study on bi-regional research cooperation on biodiversity and climate change (from 2003 to 2013)                                                                                                                                                                                                                                                                                                                          | May 2014                   |
| Completion of the study on bi-regional programs, initiatives and instruments                                                                                                                                                                                                                                                                                                                                                                | October 2014               |

## 4 Formulation of topics to be considered in the activities of the ERANet-LAC project

The following three topics have emerged from the thematic workshop on biodiversity and climate change which has been held in Santa Marta, Colombia, on 4-6 March 2014.

1. Biodiversity assessment and monitoring - Improving baseline distribution data and compatibility with climate datasets
2. Observatories network - Alignment of existing infrastructures and information platforms
3. Ecosystem-based adaptation and resilience

## **Specific call topic suggestion**

### **Biodiversity and climate change**

#### **Short background on the scientific research area**

There is clear evidence that we are entering a sixth great mass extinction event, driven by human activity on a global scale. Biodiversity is under threat in virtual all parts of the globe, with climate change being a significant contributor. While the study of climate change effects on biodiversity has received considerable interest within the last decades, this research has mainly been performed in the Northern hemisphere and much little is known in the tropical region. It is however vital to fill this gap as tropical biodiversity hotspots are experiencing some of the fastest rates of species extinction on the planet, with currently unknown consequences on ecosystem services provided to human populations. This issue is particularly topical and timely in the LAC region which shelters, for many taxonomic groups, the highest concentration of biodiversity on the planet while it is at the same time one of the region where climate change is the most apparent and rapid (e.g. sea level rise and glacier melting).

#### **Added value of EU-CELAC cooperation in this area**

Strengthening the cooperation between Europe and LAC in the context of biodiversity and climate change is a promising action for both regions. Indeed, in both EU and LAC the future of biodiversity and of the availability of and access to biological resources and ecosystem services in the context of climate change are of increasing importance in decision making. This is particularly true because the future of biodiversity strongly depends on the capacity of societies to anticipate the consequences of those decisions on time scales ranging from several years to many decades. Sharing experiences between societies from both regions is therefore expected to increase their resilience to climate change effects on biodiversity. For example, EU has a long tradition in field data acquisition and environmental monitoring, an area which urgently needs to be strengthened in the LAC region. On the other hand, many countries from the LAC region have long build a strong foundation for dialog between actors - science/society/policy - and for proactive decision-making. This issue is poorly developed in Europe.

#### **Expected long-term impact (5-10 years) impact of EU-CELAC cooperation in this area**

The development of a scientifically sound, policy and management-relevant EU-LAC cooperation is crucial for both regions so that they can anticipate the negative effects of biodiversity loss and climate change on the long term. Strengthening this collaboration is expected to develop knowledge and tools urgently needed in order to help different stakeholders from both regions to protect and sustainably manage biodiversity in the face of climate change. While different initiatives exist in the EU as well as LAC research communities to develop and apply research on this issue, strengthening existing initiatives and promoting the emergence of new projects and networks between EU and LAC would allow to maximize the synergies between both region and enhance the interactions between scientists and stakeholders (enterprises, civil society, natural resources managers, decision makers). One of the most important expected long-term impacts of this cooperation would be to strengthen the science-policy interface for biodiversity and ecosystem services for the long-term human well-being and sustainable development in the context of a rapidly changing climate.

TOPIC 1: TITLE **Biodiversity assessment and monitoring - Improving baseline distribution data and compatibility with climate datasets**

|                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Specific challenge:</b><br><br>Why is this topic relevant and which societal challenges does it address? | High quality biodiversity data are a pre-requisite for a better understanding of the interactions between biodiversity and climate change, which is a key issue for human well being. This requires strong investment in collecting solid data on the spatial distribution of Biodiversity, which are currently highly deficient. There is an urgent need for the development and improvement of taxonomy, databases, technical platforms and, the development of innovative approaches, as for modelling of species and habitat distributions. Long-term research in biodiversity and climate monitoring should be strengthened with capacity building and knowledge transfer from communities to academics and vice versa. |
| <b>Scope:</b><br><br>Added value gained from EU-CELAC cooperation for both regions                          | The following sub-topics are envisaged, pooling both regions' capacities, means and priorities:<br><br>First, innovation for biodiversity inventorying (from DNA to remote sensing) will improve primary data on species distributions. Then, sentinel species and communities can be identified from these data. Additionally, the urgent issue of exotic and alien species can be considered within an ecosystem framework. Finally, biodiversity values and ecosystem services can be better defined among academics, politicians and stakeholders.                                                                                                                                                                       |
| <b>Expected impact for both regions:</b>                                                                    | Biodiversity must be preserved in Latin America and the Caribbean (LAC) where there is an urgent need for high quality and extensive raw data. Furthermore exchanges of experts and knowledge will allow mitigating taxonomic impediments, improve data exchange and compatibility, thereby strengthening scientific expertise in EU and LAC.                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Type of action suggested:</b><br><br>Research project, networking activities, mobility etc.              | <ol style="list-style-type: none"> <li>1. Joint research projects : Biodiversity census for representative latitudinal and altitudinal transects and plots across the region</li> <li>2. Improving sustainability of existing and initiation of new long-term monitoring projects (based on/as complement to current monitoring within ALCUE NET).</li> <li>3. Capacity building (education in situ, twin labs) and knowledge transfer, with a focus on taxonomic and ecological expertise, database management and technical platforms.</li> </ol>                                                                                                                                                                          |

TOPIC 2: TITLE **Observatories network - Alignment of existing infrastructures and information platforms**

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|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Specific challenge:</b><br><br>Why is this topic relevant and which societal challenges does it address? | In order to support and implement the previous topic (i.e. biodiversity assessment and monitoring), there is a need for strengthening infrastructures and information platforms. Therefore a homogenization of data collection design, methodologies and sharing must be achieved. Furthermore, knowledge and experience should be transferred at different spatial and temporal scales.                                                                                                                                 |
| <b>Scope:</b><br><br>Added value gained from EU-CELAC cooperation for both regions                          | The following sub-topics are envisaged, pooling both regions capacities, means and priorities:<br><br>Research in earth, life and social sciences must be integrated for improved modelling across scales (from local to international) and disciplines. Monitoring and understanding of extreme events can be better assumed with a geo-bio-physical analysis such as studies on land-ocean-atmosphere interactions. Improving interdisciplinary cooperation will serve both regions by strengthening research network. |
| <b>Expected impact for both regions:</b>                                                                    | Implementation of observatories network will avoid duplicated efforts and rise complementary knowledge and global approach. Lessons learned from different disciplines and environments would be exploited, thus enabling transfer of knowledge between different countries and different ecosystems. Furthermore this will improve the connectivity between ecosystems, policies and research fields.                                                                                                                   |
| <b>Type of action suggested:</b><br><br>Research project, networking activities, mobility etc.              | <ol style="list-style-type: none"> <li>1. Mapping of existing research programs and collaborations to identify gaps and connections</li> <li>2. Development of twin labs and twin degrees to promote bi-regional capacity building, based on existing successful experiences</li> <li>3. Joint research programs to assess data-interoperability/sustainability/access/analysis infrastructures</li> <li>4. Legacy data recovery, data quality, open access</li> </ol>                                                   |

TOPIC 3: TITLE Ecosystem-based adaptation and resilience

|                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Specific challenge:</b></p> <p>Why is this topic relevant and which societal challenges does it address?</p> | <p>This topic addresses the implementation of ecosystems based management methodologies in a context of rapid and generalized changes. There is incomplete understanding how ecosystem (= landscape) change due to climate change can be mitigated and which role ecosystem resilience plays in this. Climate variability internalization, through interdisciplinary and interregional approaches, permits the development of conservation measures, adaptive management strategies and sustainable resource use (biodiversity and ecosystem services). It is designed to increase public and private sector awareness on the impact of climate change and adaptation strategies regarding priorities at different spatial and temporal scales.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <p><b>Scope:</b></p> <p>Added value gained from EU-CELAC cooperation for both regions</p>                          | <p>The following sub-topics are envisaged, pooling both region capacities, means and priorities: Identification and development of standardized methodologies and tools for the characterization of landscape attributes, such as connectivity, multi-functionality, sustainable uses and ecosystem planning and management under multiple stress conditions including organic and inorganic pollution, land use change, climate variability and change, invasive species, pathogens, etc. This will improve the the evaluation and understanding of ecosystem vulnerability and their response to climate change, to design prioritized adaptation measures. These include methods to improve the sustainable management of natural resources, (especially water, soils and forests). Ecosystem resilience and the role of biodiversity should be better characterized in order to identify possible socio-ecological trade-offs, non-linearities, and feedbacks. Interface between science and policy should be developed in order to introduce dialogue and to facilitate transfer of knowledge. This combination of approaches helps to address the Aichi Biodiversity Targets:</p> <ul style="list-style-type: none"> <li>• <a href="#">Strategic Goal A</a>: To address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society</li> <li>• <a href="#">Strategic Goal B</a>: To reduce the direct pressures on biodiversity and promote sustainable use</li> <li>• <a href="#">Strategic Goal C</a>: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity</li> <li>• <a href="#">Strategic Goal D</a>: To enhance the benefits to all from biodiversity and ecosystem services</li> <li>• <a href="#">Strategic Goal E</a>: To enhance implementation through participatory planning, knowledge management and capacity building</li> </ul> |

|                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Expected impact for both regions:</b>                                                       | <p>Research cooperation on that topic induces major improvements in areas of health, water security, sustainable environment and fight against poverty and hunger, reducing social and economical impact of climate change. It will contribute to raise awareness and invest on appropriate infrastructures based on vulnerability assessment. It allows identifying specific systems of conservation reconciling conservation and development via habitat corridors and their services for biodiversity and ecosystem services.</p>                                                                       |
| <b>Type of action suggested:</b><br><br>Research project, networking activities, mobility etc. | <ol style="list-style-type: none"> <li>1. Networking activities to develop better links and synergies between biodiversity and climate change scientific and stakeholder communities</li> <li>2. Development of models for multi-functional landscapes, socio-ecological interactions, habitat corridors and optimized conservation areas</li> <li>3. Platforms for better informed decision making under uncertainty - Communication strategies, knowledge transfer between science, society and policy</li> <li>4. Development of public-private initiatives, based on successful experiences</li> </ol> |

## 5 Summary of EU-CELAC SOM decisions-making issues

- Thematic topics suggested for the first Joint Call of the ERA NET-LAC
  - Biodiversity assessment and monitoring
  - Observatories network
  - Ecosystem-based adaptation and resilience
- Validation of Future Activities Schedule and objectives (Roadmap) 2014-2015
- Elaboration of a Bi-regional Agenda on Biodiversity and Climate Change to be discussed in next Workshop in Marseille



## 6 Annex 1: Event Report (Minutes)

### Report of the ALCUE NET – Latin America, Caribbean and European Union Thematic Workshop on Biodiversity and Climate Change (Minutes) – 4-6 March 2014 – Santa Marta

#### Meeting objectives

ALCUE NET main objective is to establish an EU-LAC platform bringing together actors involved in research and innovation, funding and implementation, as well as other relevant stakeholders from the public and private sectors and the civil society, in an effort to support the development of more strategic and result-oriented partnerships in the context of bi-regional research policy cooperation frameworks.

In pursuing this general objective ALCUE NET seeks common visions on specific issues, to coordinate activities and identify priorities of shared interest. Following the conclusions and recommendations from the Senior Officials Meetings (SOM) on Science and Technology, from Brussels in 2011 to Santiago in 2013, and in agreement with the activities mentioned in the Roadmap for the implementation of the EU-LAC Joint Initiative for Research and Innovation (JIRI), the project focus on achieving progress towards joint improvement of key aspects of societal challenges related to assuring high quality affordable food, energy, and climate change

The main objectives of the workshop were:

- The identification of key topics for research and innovation cooperation between the two regions
  - Addressing Biodiversity and Climate Change as a societal challenge
  - Pooling capacities and exploring shared interests
  - Identifying gaps and avoiding overlaps
- The promotion of networking to foster and define future joint activities
  - Creation of innovative partnerships
  - Share of knowledge and good practices
  - Capacity building activities
- The development of a thematic report, including a road map, to be updated each year
  - Capacity building / joint actions
  - Good practices / Innovation
  - Networking
  - Mapping activities

#### Identification, nomination, invitation of experts/ stakeholders/

The Workshop was aimed to gather a highly selected group of researchers, experts and stakeholders from both regions. All of the participants have experience in Biodiversity and Climate Change research and development, and some of them had already participated in previous meeting of the working group (Manizales Workshop on 2011). In order to ensure the high quality of the participants, IRD, COLCIENCIAS and the MINCyT asked all the 19 institutions members of ALCUE NET (eight from the European Union and eleven from Latin American and Caribbean countries), to invite scientist and stakeholders involved in these areas.

For the Colombian participants, COLCIENCIAS made a first selection of leading research groups and academia representatives in the country. Then, the list was refined by the Managers of the National Program of Environment and Sea Sciences, who validated the selected participants. In other words, the participants were invited based on their background and expertise in the subjects to be discussed. For the selection of the topics of the Workshop COLCIENCIAS and the IRD made a detailed analysis of the common areas to strength the cooperation. Regularly, representatives of the organizations held talks by telephone and Skype to combine logistical issues, arrange videoconferences, filter the best profiles of attendants, contents of the agenda and organize overall issues of the event.

Fifty participants attended the workshop, from 20 different countries (12 Latin-Americans countries and 8 European Countries), including representatives from Universities, research centers, national authorities, financial institutions and NGOs, as can be seen from annex b (list of participants)

### Event Development (Workshop Phases)

The final programme (see annex a.) was designed by the International Office of COLCIENCIAS and the IRD.

The meeting was structure in three parts. The first one was a ***General background and presentation of the landscape*** (4 March).

The first day began with the accreditation of participants and the official welcome by Ms. Gabriela Delgado, Director of Research Promotion of Colciencias followed by Monica Silenzi, General Coordinator at the National Directorate of International Relations of MINCyT (Argentina) and Coordinator of the ALCUE-NET project, and Jean-Joinville Vacher, Deputy Director of the Department of Sciences at IRD. They emphasized that the workshop takes place in the context of the preparation of the next SOM (3-4 April 2014, San Jose, Costa Rica) whose principal objective is to develop the bi-regional cooperation on research and innovation.

All the participants were subsequently invited to introduce themselves with their name and a few words about their organization and position.

This first day included several presentations on the bi-regional dialogue on Biodiversity and Climate Change including strategic information on the Joint Initiative for Research and Innovation, key trans-national projects and initiatives, research and political background and the objectives of the workshop.

Ms. Silenzi stressed in her presentation that the workshop has been prepared in the context of the development of joint call with the ERA NET LAC in order to contribute to support the implementation of the Joint Initiative for Research and Innovation JIRI and strength the bi-regional partnership in Science, Technology and Innovation between both regions by planning and implementing concrete joint activities and by establishing an innovative and sustainable framework for future bi-regional joint activities. The first joint call is expected to be open by October or November 2014. She mentioned that the workshop was intended to identified possible topics for the joint call that are going to be presented at the Senior Official Meetings in Costa Rica (3-4 April 2014).

Mr. Libardo Gutiérrez, from the International Office of Colciencias made a presentation about the background, work progress and activities carried out by the Working Group in Biodiversity and Climate Change. Also it was mentioned a brief explanation on the methodology of the workshop.

Then there were presentations on challenges and breakthroughs on biodiversity and climate change research. Participants had the opportunity to ask questions to the key speakers after each presentation.

For more information about the presentation, see in Annex c Doc2.

- *World Climate Research Program (WCRP) and Inter-American Institute for Global Change Research (IAI), their LAC science agenda*, by Mr. Carlos Ereño (Argentina). The IAI is an intergovernmental organization supported by 19 countries in the Americas dedicated to pursuing the principles of scientific excellence, international cooperation, and the full and open exchange of scientific information to increase the understanding of global change phenomena and their socio-economic implications. The primary objective of the IAI is to encourage research beyond the scope of national programs by advancing comparative and focused studies based on scientific issues important to the region as a whole.
- EUROCLIMA, Joint Research Center of the European Commission (JRC), by Mr. Paulo Barbosa (Belgium) - videoconference. EUROCLIMA regional cooperation program is a partnership between the European Union and Latin America, focusing on climate change. The Program objective is to improve the knowledge of decision-makers and scientists in Latin America regarding the impact of climate change in the region in order to strengthen sustainable development strategies.
- ENSOCIO-LA project Strategic, Sustainable Research and Innovation Cooperation with Latin America (Climate Action, Resource Efficiency and Raw Materials) by Ms. Zuzana Boukalova (Czech Republic). ENSOCIO-LA is a Coordination and Support Action co-funded by the European Community 7th Framework Programme, mobilising Environmental Knowledge for Policy, Industry and Society (Theme 6, Environment Programme, 2013). ENSOCIO-LA is currently conducting mapping and networking activities, which will lead to the development of further interactions with ALCUE NET in the forthcoming months.
- Biodiversity and Climate Change research in EU-LAC – Results from a bibliographic analysis by Ms. Sandrine Serre (France). It was found a total of 411 publications with a constantly increasing number of publications over the past decade. The main scientific themes arising from our search were “Tropical Diseases & Health”, “Fisheries, Land Use & Resources”, “Past & Evolution”, “Ecosystem functioning” and “Conservation”. Research was mainly performed on Latin America and Caribbean territories. The publication network analysis revealed a well interconnected bi-regional cooperation between EU-LAC, with England, Brazil, Spain, and France being the main countries involved in the cooperation in both regions. Some countries like Italy and Mexico were particularly efficient in promoting inter-countries collaborations within EU and LAC, respectively.
- Biodiversity sustainable management and key challenges by Mr. Olivier Dangles (France). The presentation explores the existing interactions between the scientific community and stakeholders through the example of the French Foundation for Research on Biodiversity (FRB). In particular the role of

BiodioVERsA ERA NET (coordinated by FRB) in the European coordination of biodiversity research and possible interactions with ALCUE NET WP5 on biodiversity and climate change were underlined. In addition it highlights the generated outputs, leading to improved coordination of French research programs and a better positioning of FRB at the international level.

- Biodiversity and climate change, scientific challenges and breakthroughs by Mr. Andy Jarvis. This presentation focused on a range of approaches that can be used to model the impacts of climate change on biodiversity. Ecological niche modeling, coupled with climate scenarios from GCMs can estimate the range shifts of species, and provide scenarios of biodiversity loss.
- AFD strategy and response to biodiversity and climate change challenges by Mr. Carl Bernadac (France). The Agence Française de Développement (AFD) is the operator for France's bilateral development finance mechanism. It is a public industrial and commercial institution with the status of specialized financial institution.
- Biodiversity networks and scientific challenges by Mr. Klaus Riede (Germany). This presentation highlighted the targets most relevant for biodiversity scientists, and explore the relation to the new Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES), with a focus on European contributions to the so-called „Fast Track Assessments“, to be delivered in 2015 (particularly the climate/biodiversity scenario development).
- Impacts of fire, changes in climate and in land use on savannas of Central Brazil by Mr. Augusto César Franco (Brazil). It started by summarizing key challenges for research on biodiversity in Brazil, compiled from on-going governmental programs focused on conservation, information gathering, and sustainable use of biodiversity and on climate change. It highlighted the importance of ecosystems processes on biodiversity conservation, by examining the impacts of fire, changes in climate and in land use on the *cerrado* of Central Brazil. The *cerrado* is the most extensive savanna ecosystem of South America and a biodiversity hotspot, harboring a diverse flora (more than 7,000 species) with high levels of endemism.
- Biodiversity and Climate change: suggestions for a research agenda by Dr. Andrés Guhl from the Universidad de los Andes. This presentation highlighted that given the current understanding of the linkages between climate change and biodiversity, it is important to acknowledge that it is not necessarily easy to carry out research in the themes presented, that they are not necessarily limited to the LAC region and in order to be effective, these research topics need a strong link to public policy.

The second day of the meeting focused on the **Working sessions** (5 March). During the morning and part of the evening it was presented some examples of good practices that helped to frame the debate. These Working sessions were divided into three different sections:

- Working session 1: Biodiversity and Climate change in Amazon ecosystems
- Working session 2: Biodiversity and Climate change in Andean ecosystems
- Working session 3: Biodiversity and Climate change in coastal ecosystems

Each working session initiated with a short speech and presentations from the moderators following which the participants were encouraged to talk and debate on the identification of priority topics and activities.

### ***Working Session1: Biodiversity and Climate change in Amazon ecosystems***

This session began with an introduction from Dr. German Palacio from the National University (Campus Amazonas) followed by short presentations of *BIOCUENCUAS* by Ulla Helimo and CIBIO – Associated Laboratory in Biodiversity and Evolutionary Biology by Nuno Ferrand.

Mr. Ferrand talked about the Hybrid zones and its importance. Hybrid zones are a unique natural laboratories to investigate the nature of species and the processes of speciation. To illustrate his point he cited the example of the evolutionary genetics of amphibians in the Amazon and the Atlantic Forest focusing on patterns of differentiation, hybridization, speciation and conservation.

Some key issues have been addressed by the moderator and in the discussions between the participants:

Gas and oil exploration and mineral resources exploitation are factors affecting biodiversity and aboriginal territories. Mineral resources exploration and exploitation have created dramatic effects on the communities of the region, highly dependent on the water resources. Dr. Palacio gave the floor to the participant after mentioning the following suggestion:

- To include researchers from the social sciences and humanities In order to open up crucial questions on human dimensions of CC and BD
- To stimulate transnational, comparative, regional proposals
- To foster dialogue between scientific and local knowledge.
- To integrate different stakeholders

Participants during this part of the workshop mentioned that there is a link between the amazon climate change and the deforestation and fragmentation of the forest in this part of the world.

This session concluded that the Amazon is the most important large forest ecosystem of the world, with no pair in terms of richness of species of plants and animals. The Amazon is under the influence of a number of projects of road and waterways infrastructure developed in the name of the economic development and regional integration. Ms. Ulla Helimo (Finland) from Conservation International in Peru, said that one of the main threats for the environment in the Amazon is the migration from the Andes, native people living on higher altitudes tend to move from place to another depending on the season.

### ***Working session 2: Biodiversity and Climate change in Andean ecosystems***

The session was moderated by Olivier Dangles and two presentations were made by Maria Angela Echeverry (Colombia) from Universidad Pontificia Javeriana and Maximilian Weigend from University of Bonn (Germany).

Some key issues have been addressed by the moderator and in the discussions between the participants:

Olivier Dangles opened the discussion mentioning past experience of environmental monitoring networks. The moderator also mentioned four key issues on Biodiversity and Climate Change in Andean Ecosystem:

1. Monitoring changes: There is a need for standardization, including database platform and an open data policy
2. Modeling changes: including microclimates and species interactions:
3. Pluri- & trans-disciplinarity science: from earth science to social science
4. From science to policy making: stakeholder involvement (at various levels), capacity building, actionable science

Dr. Maximilian Weigend, referred to the impact of climate change on the migration of vegetation zones. He mentioned that this displacement will be both altitudinal and latitudinal, in other word, narrowly distributed species and vegetation types will be most affected by climate change.

It was suggested that researchers and scientists require a more complete understanding of current species distribution pattern, one centralized database on species distribution pattern. There is a need of homogenization in terms of data base management and methodologies of assessment. This would provide a simplified, but indispensable basis for decisions, that can be used for defining corridors and protected areas.

Several participants said that, given their particular characteristics, Andean ecosystems are not as vulnerable as others to the effects of climate change. Nonetheless it is important to mention that there is a lack of ecological information in this area.

It was also underlined that research analysis and research on invasive species are an important and urgent challenge. Indeed biological invasion negative impacts on biodiversity are occurring at an unprecedented rate. Furthermore, it was remarked that aquatic ecosystems as wetlands (humedales) are more vulnerable to changes in temperature, which create alterations in the hydrological balance. If the glaciers disappear, the Andes wetlands will disappear too and that will damage the biodiversity of the region.

The moorlands (paramos) are between the ecosystems at larger altitudes in the Andes. The plant endemism is very high. The moorland ecosystem is very important for their capabilities of water storage and organic matter retention in the soil. They have a patchy distribution in the highest points of the mountains, which make them more vulnerable to fire, invasion by another plants, and rise in temperature. Some participants explained that only a very small fraction of the Andean species are known in any degree of detail at all, and the progress in identifying and naming the others is exceedingly slow.

### ***Working session 3: Biodiversity and Climate change in coastal ecosystems***

Dr. Luis Alejandro Yañez-Arancibia from the Institute of Ecology, (CONACyT, Mexico) and Ms. Paula Cristina Sierra from INVEMAR COLOMBIA were in charge to moderate this session. Carlos Patiño Gómez, from the Universidad de las Américas (Puebla, Mexico) also made a presentation on *Adaptation to climate change impacts on the coastal wetlands in the Gulf of Mexico* during the session.

Dr. Yañez started his presentation mentioning that “climate change will be a signal of global insecurity. Climate change will multiply global tensions, stress, social and economic relationships, and environmental quality going to be at severe risk in the planet. The interplay among shrinking resources, energy scarcity, economic crisis and climate change will be difficult to solve, inducing instability, conflicts and uncertainty toward sustainability”.

He showed different pictures that evidence the effects of the climate change for instance the melting of the Antarctic continent and the sea level rise. In the other hand Ms. Sierra mentioned that there are four main areas of cooperation, Understanding of the interaction Ocean - Atmosphere – Earth, Ecosystem Services, Ordering of activities in the coastal area, Evaluation at policy issues, legal, institutional and organizational.

Some key issues have been addressed by the moderator and in the discussions between the participants, they agreed that the ocean, the coastal zone and their related ecosystems play a major role as a regulator of climate, biology, hydrological regimes, pollution control, erosion protection, and natural hazards, these ecosystems are very sensitive to effects on biodiversity with clear implications for sustainable use of resources.

Climate change has been linked to variations in biomass and fisheries stocks, coral bleaching, and changes in spatial distribution of corals, mangroves, sea grass and other species, sea level rise, and also allegedly to changes in storm’s path and intensity. In this context certain ecosystems can be used for the monitoring of the effects of climate change and they are called sentinel ecosystems.

Participants mentioned that there is a need to work on adaptation to climate change, and to better understanding the existing interactions between ocean-atmosphere-land, the development and sustainability of observing systems, modelling and early alert systems, hydrography, geology and geomorphology, sedimentology, climatology and meteorology, limnology.

Some of the main topics that were discussed during the session were biotic component, ecosystem services, carbon capture, ecosystem adaptation, sentinel and strategic ecosystems, value and conservation of ecosystems, marine ecology, protected marine and coastal areas and their connectivity, biodiversity threats and their management , relationship marine biodiversity-climate change.

### ***Wrap up of the results of the previous working sessions***

Later on, the main topics and conclusions of the previous working sessions were wrapped up and began the elaboration of a draft document with recommendations, actions, areas of common interest and joint initiatives to prepare the document.

On the last day of the Workshop took place the part three of the event. On this day it was distributed a questionnaire among the participants in order to have their opinion and thought about the execution of the workshop. After that, the last session was the ***Formulation and identification of the main topics for the elaboration of the thematic report*** (6 March). During this session participants were encouraged to add key topics of common interest, cooperation areas, recommendations, actions and joint initiatives in Biodiversity and Climate Change.



After the discussions there were carefully chosen three topics, eleven subtopics and eight recommended actions (see Annex d. Documents elaborated during the meeting). These three topics are the following:

- **Biodiversity assessment and monitoring:** Ecosystem approach to exotic and alien species, Sentinel species and communities, Innovation for biodiversity inventorying (e.g. from DNA to remote sensing), Raw data on species distribution, Biodiversity values & ecosystem services.
- **Observatory networks:** Integrated research between earth and ocean, life and social sciences, Set up of observing systems, Priority to data recovery, conservation, quality and sharing, modeling across scales and disciplines.
- **Ecosystem-based adaptation and resilience:** Landscape attributes (connectivity, multifunctionality, and sustainable use), Role of biodiversity in ecosystem resilience, Ecosystem vulnerability and response to climate change, Socio-ecological trade-offs, Science/policy interface and dialogue.

Participants emphasized that there is a tight and interdependent relationship between biodiversity and the human systems, likewise they highlighted that the understanding of the Interaction between biodiversity and climate change is a key issue for human wellbeing, this requires solid data which are not yet available for biodiversity, and innovative approaches.

Attendants underlined that the comprehensive assessment and monitoring of continental and marine ecosystems can be greatly improved at regional level with the development of an observational network that can take advantage of existing infrastructure and programs and offer data standardization, easy access to scientific and management community and guarantee of long term maintenance of the databases. That can be achieved by strengthening infrastructure and information platforms, and by transfer of knowledge and successful experiences at different levels. Nonetheless they were very persistent that every country will decide its level of involvement depending of their policies and laws related to biodiversity, and genetic material access for research.

In this session, the assistants pointed out the understanding of migration, adaptation, the connectivity of ecosystems, the development of new ones, and other elements related to ecosystem dynamics are key issues for decision making. The Implementation of ecosystems based management methodologies internalizing climate variability is not just relevant due to the previous facts; it is needed in order to develop comprehensive measures in conservation and sustainable use of resources. An Interdisciplinary and interregional approach certainly can benefit the studies in this area.

## 1. Main outcomes

The main outcome was the identification of key topics, in climate change and biodiversity, for research and innovation cooperation between Latin-America and Europe. This workshop through the dialogue between scientists, stakeholders and experts in key topics, helped to prioritize cooperation areas for future collaborations.

Specific recommendations have been identified on future research priorities to create new synergies between ALCUE NET and other existing networks involved in biodiversity and climate change area, so promoting coordinated actions and avoiding overlaps on Biodiversity and Climate Change to strengthen the bi-regional sustainable dialogue on Science and Technology between the two regions. In particular, the three topics that have



emerged from the discussion and debate will be formulated in a thematic report to be recommended to the next SOM (3-4 April 2014 in Costa Rica) and to the ERA NET LAC for future joint calls.

This identification of key topics of common interest would strengthen the already existent levels of cooperation in policy making, scientific and management networking, mobility and funding, at the same time it is expected that the sharing of expertise and capabilities would generate improvement and development in both sides in data management, methodologies, and planning. The use of biodiversity as a tool for the follow up of climate change is an added value in biodiversity research given the importance of the subject of climate change.

## Agenda

# **ALCUE NET – Latin America, Caribbean and European Union Thematic Workshop on Biodiversity and Climate Change**

**March 4-6, 2014 – Santa Marta, Colombia**

Colciencias, Colombia / IRD, France

| <b>Tuesday, March 4</b> |                                                                                                                                                                                                                                                                                           |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8:30                    | <b>Registration</b>                                                                                                                                                                                                                                                                       |
| 9:00                    | <b>Welcome and opening</b><br><br><i>Lucy Gabriela Delgado, Colciencias Director of Research promotion, Colombia</i><br><br><i>Jean-Joinville Vacher, IRD Deputy Director of Science, France</i>                                                                                          |
| 9:20                    | <b>Introduction of participants</b>                                                                                                                                                                                                                                                       |
| 9:35                    | <b>Bi-regional dialogue on Biodiversity and Climate Change</b><br><br><ul style="list-style-type: none"> <li>✓ The JIRI : general ideas, objectives and structure</li> <li>✓ The SOM working groups and the pilots initiatives</li> </ul> <i>Libardo Gutiérrez, Colciencias, Colombia</i> |
| 9:45                    | <b>EU-LAC activities</b><br><br><ul style="list-style-type: none"> <li>✓ ALCUE NET</li> <li>✓ ERANet-LAC</li> </ul> <i>Monica Silenzi, Project coordinator, MINCYT, Argentina</i>                                                                                                         |
| 10:05                   | <b>Explanations about the general objectives of the meeting</b><br><br><i>Claire Freour, IRD &amp; Libardo Gutiérrez, Colciencias</i>                                                                                                                                                     |
| 10:15                   | <b>Presentation of EU and EU-LAC or LAC initiatives related to Climate change and Biodiversity:</b><br><br><ul style="list-style-type: none"> <li>✓ IAI – Regional research Agenda and World Climate Research Programme (WCRP) LAC Agenda</li> </ul>                                      |

|        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | <i>Carlos Ereño, University of Buenos Aires, Argentina</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 10:45  | <i>Coffee break</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 11:05  | <p><b>Presentation of EU and EU-LAC or LAC initiatives related to Climate change and Biodiversity:</b></p> <ul style="list-style-type: none"> <li>✓ EUROCLIMA<br/><i>Paulo Barbosa, Joint Research Center of the European Commission (JRC), Belgium, videoconference</i></li> <li>✓ ENSOCIO-LA<br/><i>Zuzana Boukalova, METCENAS, Czech Republic</i></li> </ul>                                                                                                                                                                         |
| 12:10  | <p><b>Biodiversity and Climate Change research in EU-LAC – Results from a bibliographic analysis</b><br/><i>Sandrine Serre, IRD, France</i></p>                                                                                                                                                                                                                                                                                                                                                                                         |
| 13 :00 | <i>Lunch</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 14:30  | <p><b>Presentations</b> about scientific and stakeholders challenges and breakthroughs on biodiversity and climate change</p> <p><i>The presentations will be followed by open discussion with the participants in the session</i></p> <ul style="list-style-type: none"> <li>✓ <i>Jean-Joinville Vacher &amp; Olivier Dangles, IRD, France</i></li> <li>✓ <i>Andrew Jarvis, International Centre for Tropical Agriculture (CIAT), Colombia</i></li> <li>✓ <i>Carl Bernadac, French Development Agency in Colombia (AFD)</i></li> </ul> |
| 16:00  | <i>Coffee break</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 16:20  | <ul style="list-style-type: none"> <li>✓ <i>Klaus Riede, Alexander Koenig Research Museum, Germany</i></li> <li>✓ <i>Andrés Guhl, Universidad de los Andes, Colombia</i></li> <li>✓ <i>Augusto César Franco, University of Brasília, Brazil</i></li> </ul>                                                                                                                                                                                                                                                                              |
| 18:30  | <i>End of the first day</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 20:00  | <i>Dinner with all the participants of the meeting</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| <b>Wednesday, March 5</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9:00                      | <p><b>General objectives</b> of the workshop day</p> <p><i>Claire Freour, IRD &amp; Libardo Gutiérrez, Colciencias</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 9:15                      | <p><b>Working session 1: Biodiversity and Climate change in Amazon ecosystems:</b></p> <p>Examples and identification of priority activities of common interest and innovative partnerships (topics for ERA NET joint call, capacity building, mappings, others...)</p> <ul style="list-style-type: none"> <li>✓ <i>Moderator: German Palacio, National University of Colombia</i> <ul style="list-style-type: none"> <li>○ <i>Ulla Helimo, Conservation International, Peru</i></li> <li>○ <i>Nuno Ferrand, CIBIO, Portugal</i></li> </ul> </li> </ul> |
| 10:45                     | <i>Coffee Break</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11:00 | <b>Working session 2: Biodiversity and Climate change in Andean ecosystems:</b><br><br>Examples and identification of priority activities of common interest and innovative partnerships (topics for ERA NET joint call, capacity building, mappings, others...)<br><br>✓ <i>Moderator: Olivier Dangles, IRD, France</i> <ul style="list-style-type: none"> <li>○ <i>María Ángela Echeverry, Universidad Pontificia Javeriana</i></li> <li>○ <i>Maximilian Weigend, University of Bonn, Germany</i></li> </ul>                                                      |
| 12:30 | <i>Lunch</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 14:00 | <b>Working session 3: Biodiversity and Climate change in coastal ecosystems:</b><br><br>Examples and identification of priority activities of common interest and innovative partnerships (topics for ERA NET joint call, capacity building, mappings, others...)<br><br>✓ <i>Moderator: Luis Alejandro Yañez-Arancibia, Institute of Ecology, CONACyT, Mexico</i><br>✓ <i>Moderator: Paula Cristina Sierra, INVEMAR COLOMBIA</i> <ul style="list-style-type: none"> <li>○ <i>Carlos <b>Patiño Gómez</b>, Universidad de las Américas Puebla, Mexico</i></li> </ul> |
| 15:30 | <i>Coffee Break</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 16:00 | <b>Wrap up of the results of the previous working sessions</b><br><br><i>Colciencias &amp; IRD</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 16:30 | <b>Elaboration of a draft document</b> with recommendations/ actions/ topics of common interest and joint initiatives to prepare the thematic report to next SOM<br><br><i>Colciencias &amp; IRD</i>                                                                                                                                                                                                                                                                                                                                                                |
| 18:00 | <i>End of the second day</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Thursday, March 6 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8:15              | <b>Evaluation Questionnaire</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 08:30             | <b>Conclusions</b><br><br><i>Colciencias &amp; IRD</i>                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 09:45             | <i>Coffee Break</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 10:00             | <b>SOM Working Group on Biodiversity and Climate Change Meeting</b><br><br><i>Moderator: Andrzej Rogulski, Ministry of Higher Education and Research, France</i><br><br>Introduction of participants<br><br>Brief on the progress of the working group and results of the workshop<br><br>Presentation for discussion on the draft document with recommendations/ actions/ topics of common interest and joint initiatives to prepare the Thematic Report & Concept paper to the |

|       |                                     |
|-------|-------------------------------------|
|       | next SOM<br><br>Closure and remarks |
| 12:00 | <i>Lunch</i>                        |
|       | <i>End of the meeting</i>           |

### Participant list

| <b>Name</b>     | <b>Surname</b>   | <b>Country</b>     | <b>Organisation</b>                                 |
|-----------------|------------------|--------------------|-----------------------------------------------------|
| Germán Ignacio  | Andrade          | Colombia           | Instituto Humboldt                                  |
| Katrijn         | Baetens          | Belgium            | Royal Belgian Institute of Natural Sciences         |
| Egna            | Barrero          | Colombia           | Colciencias                                         |
| Maria de Fatima | Battaglin        | Brazil             | CNPq                                                |
| Alexandra       | Bellayer-Roille  | France             | French Embassy in Venezuela                         |
| Carl            | Bernadac         | France             | AFD                                                 |
| Jose            | Boninsegna       | Argentina          | Institute for Snow and Glacier Research             |
| Zuzana          | Boukalova        | Czech Republic     | METCENAS                                            |
| Augusto         | César Franco     | Brazil             | University of Brasilia                              |
| Olivier         | Dangles          | France             | IRD                                                 |
| María Ángela    | Echeverry        | Colombia           | Pontificia Universidad Javeriana                    |
| Carlos          | Ereño            | Argentina          | University of Buenos Aires                          |
| Nuno            | Ferrand          | Portugal           | CIBIO                                               |
| Apolinar        | Figuerola        | Colombia           | U. Cauca                                            |
| Claire          | Freour           | France             | IRD                                                 |
| Lucy            | Gabriela Delgado | Colombia           | Colciencias                                         |
| Andres Ernesto  | Guhl             | Colombia           | Universidad de los Andes                            |
| Régis           | Guillaume        | France             | French Embassy in Colombia                          |
| Libardo         | Gutierrez        | Colombia           | COLCIENCIAS                                         |
| Ulla            | Helimo           | Peru               | Conservation International                          |
| Guy             | Henry            | France             | CIRAD                                               |
| Sebastian       | Herzog           | Bolivia            | Asociacion Armonia                                  |
| Sixto J.        | Inchaustegui     | Dominican Republic | MESCyT                                              |
| Tiina           | Jääskeläinen     | Finland            | Finnish Environment Institute                       |
| Andy            | Jarvis           | Colombia           | CIAT                                                |
| Omar            | Lopez            | Panama             | INDICASAT                                           |
| Ignacio         | Lorenzo          | Uruguay            | Ministry of Housing and Land Management Environment |
| Luis            | Manjarrés        | Colombia           | U. Magdalena                                        |

| Mauro          | Maza            | Colombia   | Colciencias                                                                                          |
|----------------|-----------------|------------|------------------------------------------------------------------------------------------------------|
| Jaime          | Medina          | Ecuador    | Secretariat of higher education, science, technology and innovation                                  |
| Adrian Antonio | Monge Monge     | Finland    | University of Helsinki                                                                               |
| Juan Carlos    | Narváez         | Colombia   | U. Magdalena                                                                                         |
| Camilo         | Ovalles         | Colombia   | COLCIENCIAS                                                                                          |
| German         | Palacio         | Colombia   | National University of Colombia                                                                      |
| Francisco      | Pando           | Spain      | GBIF                                                                                                 |
| Carlos         | Patino          | Mexico     | CONACyT                                                                                              |
| Otto           | Polanco         | Colombia   | Colciencias                                                                                          |
| Klaus          | Riede           | Germany    | Alexander Koenig Research Museum                                                                     |
| Diego          | Rivera          | Chile      | University of Concepcion                                                                             |
| Daniel         | Ruiz            | Argentina  | International Research Institute for Climate and Society Columbia University in the City of New York |
| Andrzej        | Rogulski        | France     | Higher Education and Research Ministry                                                               |
| Norbert        | Sauberer        | Austria    | Vienna Institute for Nature Conservation and Analyses                                                |
| Sandrine       | Serre           | France     | IRD                                                                                                  |
| Paula Cristina | Sierra          | Colombia   | Invemar                                                                                              |
| Monica         | Silenzi         | Argentina  | MINCYT                                                                                               |
| Alvaro         | Soutullo        | Uruguay    | NMNH                                                                                                 |
| Jesús          | Ugalde Gómez    | Costa Rica | National Biodiversity Institute                                                                      |
| Jean Joinville | Vacher          | France     | IRD                                                                                                  |
| Maximilian     | Weigend         | Germany    | University of Bonn                                                                                   |
| Alejandro      | Yáñez-Arancibia | Mexico     | CONACyT, Instituto de Ecología, A.C. INECOL                                                          |

#### Documents distributed before the meeting

##### Doc 1. Explicative note

### **ALCUE NET – Latin America, Caribbean and European Union Thematic Workshop on Biodiversity and Climate Change**

**March 4-6, 2014 – Santa Marta**

Colciencias, Bogotá, Colombia / IRD, Marseille, France

**ALCUE NET** - is a four and a half year project funded by the 7th Framework Programme of the European Union, which started in December 2012. The consortium is composed of 19 institutions, eight from the European Union and eleven from Latin American and Caribbean countries, representing stakeholders from government and

research. Its main goal is to strengthen bi-regional sustainable dialogue on Science and Technology between European (EU), Latin American and Caribbean (LAC) countries.

### ***Scope and objectives***

ALCUE NET main objective is to establish an EU-LAC platform bringing together actors involved in research and innovation, funding and implementation, as well as other relevant stakeholders from the public and private sectors and the civil society, in an effort to support the development of more strategic and result-oriented partnerships in the context of bi-regional research policy cooperation frameworks.

In pursuing this general objective ALCUE NET seeks common visions on specific issues, to coordinate activities and identify priorities of shared interest. Following the conclusions and recommendations from the Senior Officials Meetings (SOM) on Science and Technology, from Brussels in 2011 to Santiago in 2013, and in agreement with the activities mentioned in the Roadmap for the implementation of the EU-LAC Joint Initiative for Research and Innovation (JIRI), the project focus on achieving progress towards joint improvement of key aspects of societal challenges related to assuring high quality affordable food, energy, and climate change.

### ***Background information on EU-LAC Policy Dialogue<sup>1</sup>***

European Union (EU) – Latin America and Caribbean (LAC) Summit in 2010 adopted **Madrid Action Plan** in order to develop and reinforce bi-regional cooperation in six fields. The first of these fields is **Science, Research, Innovation and Technology**.

The main objective in this area is to develop the “EU-LAC Knowledge Area” through: i) improving cooperation in research and innovation; ii) strengthening scientific and technological capacities, and infrastructures; iii) supporting research, innovation and knowledge sharing taking into account the contribution of ancestral and traditional knowledge; iv) boosting the use of new technologies and technology transfer underpinning sustainable socio-economic development and v) fostering cooperation between both regions with respect to the digital economy and the reduction of the digital divide for improving competitiveness while making social inclusion a cross-cutting issue.

The **Joint Initiative for Research and Innovation**, called **JIRI**, was endorsed by the 2010 Madrid Summit Action Plan. Its mandate is, among others, to “establish regular bi-regional dialogue on science, research, technology and innovation to consolidate EU-LAC cooperation and to update common priorities, encourage mutual policy learning and ensure the proper implementation and effectiveness of cooperation instruments”.

**Five senior officials working groups** were established in 2010 within the JIRI to mobilize stakeholders on priority areas of mutual interest. Calling on a wide range of experts from both regions with the support of several INCONETs, the four **thematic working groups** have narrowed down objectives for the short- and medium term and outlined concrete activities and funding options to be further elaborated for bi-regional cooperation in the following areas:

- Bioeconomy including food security – co-led by Argentina and France
- Information and Communication Technologies (ICT) for meeting societal challenges – co-led

<sup>1</sup> Background documents can be downloaded from: IV EU-LAC SUMMIT, Madrid, 18 May 2010 “Towards a new stage in the bi-regional partnership: innovation and technology for sustainable development and social inclusion”

JOINT INITIATIVE FOR RESEARCH AND INNOVATION: [http://eeas.europa.eu/lac/madrid2010/events/science/docs/20100226\\_st\\_som\\_final\\_doc\\_en.pdf](http://eeas.europa.eu/lac/madrid2010/events/science/docs/20100226_st_som_final_doc_en.pdf)

MADRID ACTION PLAN 2010-2012: [http://www.consilium.europa.eu/uedocs/cms\\_Data/docs/pressdata/en/er/114540.pdf](http://www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/er/114540.pdf)

MADRID DECLARATION: [http://www.consilium.europa.eu/uedocs/cms\\_Data/docs/pressdata/en/er/114535.pdf](http://www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/er/114535.pdf)

by Chile and Finland

- Biodiversity and Climate Change – co-led by Colombia and France
- Energy – co-led by Mexico and Spain

A fifth cross-cutting group co-led by Mexico and Portugal looks at funding and good practice.

The European Union Economic Community of Latin American and Caribbean countries (EUCELAC) Senior Officials Meeting (SOM) takes place every year in order to discuss STI bi-regional cooperation. JIRI work group present at the SOM results of their activities and possible paths for greater cooperation.

Addressing societal challenges through action in biodiversity and climate change thematic priority of the JIRI allows identification and development of activities in this field. Specific objectives include:

- Assessing the bi-regional STI cooperation on biodiversity and climate change,
- Strengthening STI cooperation in the field of biodiversity and climate change by identifying conditions and opportunities for joint activities and funding instruments;
- Helping to improve the conditions for bi-regional cooperation in biodiversity and climate change, through the promotion of information, sharing experiences and good practices and encouragement of innovation initiatives.

### ***Workshop objectives***

In line with ALCUE NET work, we invite you to attend a workshop in Santa Marta. This workshop will focus on biodiversity and climate change, with the specific aim to identify key topics for research and innovation cooperation between the two regions. Discussions will ensure to assess and define how addressing climate change and biodiversity use issues as societal challenges. It will result in identifying priority topics in this field so that a consensus could be reached. Workshop results will be gathered into a Concept Note including recommendations, in particular regarding future research priorities on the topics. This note will be sent to the JIRI so that it can develop a joint call. If appropriated, the note would also be used as an input for SOM recommendations in April 2014.

The workshop has been designed in such a way as to allow plenary sessions where the state of the art on EU-LAC cooperation on biodiversity and climate change issues will be set. Parallel sessions where participants will discuss strategic priorities for the cooperation between EU and LAC countries, will be also conducted. The parallel sessions aim addressing the needs and interests of scientific experts, stakeholders and policy makers. All participants will then meet in a plenary session fostering collaborative discussions on the subject, with an ecosystem approach, which includes Amazon, Andean and coastal ecosystems. Following the completion of discussions, participants will focus on the selection of priority topics of mutual interest.

Finally, a meeting of the SOM working group on biodiversity and climate change will be organized on March 6 afternoon to discuss the next steps of the cooperation and the preparation of the SOM meeting to be held in Costa Rica in April.

### ***Workshop participants***

The event will involve EU and LAC scientific experts in the fields of biodiversity and climate change familiar with national priorities and transnational cooperation between EU and LAC. It will also involve ALCUENET partners, policy makers, representatives of the European Commission, stakeholders, representatives of innovative companies, members of NGOs as well as the coordinators of selected relevant transnational projects.

For more information about this workshop, please contact IRD (Claire Freour: [claire.freour@ird.fr](mailto:claire.freour@ird.fr)) or Colciencias (Libardo Andres Gutiérrez Mengual: [lagutierrez@colciencias.gov.co](mailto:lagutierrez@colciencias.gov.co))

## **Doc 2. Summaries of the presentations**

### **ALCUE NET – Latin America, Caribbean and European Union Thematic Workshop on Biodiversity and Climate Change**

**March 4-6, 2014 – Santa Marta**

Colciencias, Bogotá, Colombia / IRD, Marseille, France

## **SUMMARIES OF THE PRESENTATIONS**

### **Tuesday 4, March**

#### **✓ EU-LAC activities**

ALCUE NET - is a four and a half year project funded by the 7th Framework Programme of the European Union, which started in December 2012. The consortium is composed of 19 institutions, eight from the European Union and eleven from Latin American and Caribbean countries, representing stakeholders from government and research. Its main goal is to strengthen bi-regional sustainable dialogue on Science and Technology between European (EU), Latin American and Caribbean (LAC) countries.

ERANet-LAC - is a Network of the European Union (EU) and the Community of Latin American and Caribbean States (CELAC) on Joint Innovation and Research Activities. It strengthens the bi-regional partnership in Science, Technology and Innovation by planning and implementing concrete joint activities and by creating a sustainable framework for future bi-regional joint activities.

#### **Monica Silenzi, Argentina**

Mónica Silenzi holds an International Relations and Political Sciences grade, a Master Degree on Science and Technology as well as specialized seminars and courses in the International Cooperation field. She is General Coordinator at the National Directorate of International Relations (DNRRII) of MINCYT, in charge of the Liaison Office for STI between Argentina-EU (ABEST) and multilateral affairs. She is currently the Argentinean INCO NCP, develops and active role as international cooperation expert with the EU in bilateral and bi-regional (EULAC) matters as well as broad LAC regional cooperation experience.

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#### **✓ World Climate Research Programme (WCRP) and Inter-American Institute for Global Change Research (IAI), their LAC science agenda**

The WCRP Mission is to facilitate the analysis and prediction of the Earth system variability and change for use in an increasing range of practical applications of direct relevance, benefit and value to society. The two overarching objectives of the WCRP are: to determine the predictability of climate; and the effect of human activities on climate. Two of the WCRP Core Projects have interest and supported activities in the LAC region, the Climate Variability and Predictability (CLIVAR) and the Global Energy and Water Cycle Experiment (GEWEX) projects. CLIVAR is focused on ocean-atmosphere interactions in order to better understand climate variability, predictability and change. GEWEX is focused on the atmospheric and thermodynamic processes that determine the global and regional hydrological cycle. La Plata Basin (LPB) Regional Hydroclimate Project is an example of the joint GEWEX/CLIVAR efforts to the region. At present, WCRP and CLIVAR are reorganizing their structure, which includes their futures activities in LAC. The Variability of the American Monsoon (VAMOS)



panel, main WCRP/CLIVAR initiative for LAC, is evolving to be part of a CLIVAR Global Monsoons Panel and a new regional group which will emerge from the new science priorities to be identified in the next WCRP Conference for Latin America and the Caribbean, Developing, linking, and applying climate knowledge, Montevideo, Uruguay on 17-21 March, 2014.

The IAI is an intergovernmental organization supported by 19 countries in the Americas dedicated to pursuing the principles of scientific excellence, international cooperation, and the full and open exchange of scientific information to increase the understanding of global change phenomena and their socio-economic implications. The IAI was envisaged as an intergovernmental instrument by which scientists and decision makers of countries throughout the Americas might jointly address the critical issues associated with global change in the region. The primary objective of the IAI is to encourage research beyond the scope of national programs by advancing comparative and focused studies based on scientific issues important to the region as a whole. Current Science Programs include the Collaborative Research Network (CRN 3) 2012-2017, Ecosystems Services Projects, Science Integration Projects, with a total IAI funding of US\$ 10.5 million.

#### **Carlos Ereño, Argentina**

Carlos E. Ereño received a degree in Meteorology from the Universidad of Buenos Aires and MSc degree in Climatology from the University of Wisconsin, USA. He led the Naval Meteorological Service, the Hydrographic Service of the Navy, and scientific consultant of hydrometeorological private companies. He has been involved in the development of the Inter-American Institute for Global Change Research (IAI) and currently is the chair of the IAI Executive Council. Since 2001 is working at the International CLIVAR Project Office as Science Project Manager for the American and Asian-Australian Monsoon Panels. He is member of the National Academy of Geography of Argentina, the Academy of the Sea of Argentina, and also member of the Academic Council of the Instituto Tecnológico de Buenos Aires (ITBA). Actually, he is a full professor at the Department of Geography, University of Buenos Aires, Argentina. He is the author of numerous publications specialized in climate variability and climate change in the LAC region.

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#### ✓ **EUROCLIMA, Paulo Barbosa, coordinator, Belgium**

EUROCLIMA regional cooperation programme is a partnership between the European Union and Latin America, focusing on climate change. *The Programme's objective is to improve the knowledge of decision-makers and scientists in Latin America regarding the impact of climate change in the region in order to strengthen sustainable development strategies.* EUROCLIMA is implemented by the Joint Research Centre of the European Commission (JRC), the Economic Commission for Latin America and the Caribbean (ECLAC) and by EuropeAid (DG Development and Cooperation) supported by the Technical Assistance.

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#### ✓ **ENSOCIO-LA project Strategic, Sustainable Research and Innovation Cooperation with Latin America (Climate Action, Resource Efficiency and Raw Materials)** Web page: [www.ensocio-la.eu](http://www.ensocio-la.eu)

ENSOCIO-LA is a Coordination and Support Action co-funded by the European Community 7th Framework Programme Mobilising Environmental Knowledge for Policy, Industry and Society (Theme 6, Environment Programme, 2013). As a Coordination Action, the ENSOCIO-LA project aims at establishing sustainable and integrated research and innovation cooperation between the EU and Latin American Countries in the environmental field, namely in climate change, resource efficiency and raw materials; ENSOCIO-LA will also help improve dissemination and the exploitation of research results in this area by different user groups. ENSOCIO-LA will provide a network of networks. These objectives will be pursued through the following project components: Review of initiatives, networks and funding opportunities (WP2); Climate change focused actions (WP3); Resource efficiency focused actions (WP4); Raw materials focused actions (WP5); Proposals for the joint research and innovation agenda, including policy and funding (WP6); Networking, communication and dissemination (WP7) with the following specific actions:

- Identification and clustering of EU funded projects with high added value and relevance to the regional needs, as well as developing synergies with projects funded by other EU instruments and other parts of FP7
- Identification of tools and instruments for enhancing cooperation at a more strategic level and exploitation of results

- Concrete proposals for upgrading the joint research and innovation agenda at more strategic levels
- Linking major EU projects or clusters with projects/networks in the region and with users
- Identification of potential other sources of funding and mobilisation of financial means from various sources.

#### **Zuzana Boukalova, Czech Republic**

She has about 25 years' experience in applied research in water resources engineering, Integrated Water Resources Management, Flood Risk Assessment, groundwater vulnerability, and pollution control. Main research interests are related to impacts of drainage and land-use, pollution control, IWRM practices, water quality & quantity issues and flood risk management. She was the national expert for third countries participation in FP7 and act as the expert (member of the Sounding Board of the Commissioner Janez Potocnik for FP7 simplification) opening the FP7 programme in Latin America – Brazil. She was as well the expert of Czech Ministry of Agriculture on the River Basin Management Plans and implementation of the FLOODsite IP results in CR. She is working as the external expert evaluating projects & programs relevant to Environment, Energy Efficiency and Water Resources Management for the Ministry of Industry and Trade (from 2008), for the Ministry of Education (from 2010) and for Technology Agency (from 2011) in Czech Republic. From 2012 is a member of the representation of CR for the preparation of Horizon 2020 programme, the area Environment and Climatic change. *References from international projects:* **FP5:** IRON CURTAIN, IMPACT, TRANSCAT; **FP6:** FLOODSITE, ARMONIA, BRAHMATWINN; **FP7:** GENESIS, FLOODPROBE, ENSOCIO\_LA and **EUREKA** projects GEMSTONE, NASYP, eGMS, FLUORSPAR, STORAGE, ALICE. *National projects:* Development of advanced technology for environmental protection and incorporation of this knowledge into new tools for better-integrated water management in the catchment scale (Technological Agency of CR).

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#### ✓ **Biodiversity and Climate Change research in EU-LAC – Results from a bibliographic analysis**

As scientific publications are the product of collaboration among researchers and institutions, they may give an overview on research network structure and dynamics. With the aim of documenting bi-regional research collaboration at the interface between Biodiversity and Climate change, we performed a literature survey in Web of Science of publications involving authors from European Union (EU), Latin America and Caribbean (LAC) between 2003 and 2013. We found a total of 411 publications with a constantly increasing number of publications over the past decade. The main scientific themes arising from our search were “Tropical Diseases & Health”, “Fisheries, Land Use & Resources”, “Past & Evolution”, “Ecosystem functioning” and “Conservation”. Research was mainly performed on Latin America and Caribbean territories. The publication network analysis revealed a well interconnected bi-regional cooperation between EU-LAC, with England, Brasil, Spain, and France being the main countries involved in the cooperation in both regions. Some countries like Italy and Mexico were particularly efficient in promoting inter-countries collaborations within EU and LAC, respectively.

#### **Sandrine Serre, France**

Sandrine Serre, Scientific Project Engineer at IRD Headquarters, Marseille, France. She is a Life Sciences Engineer and works with several scientific organizations. She is currently working on the scientific production of the EU-LAC cooperation network in Biodiversity and climate Change.

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#### ✓ **Biodiversity sustainable management and key challenges**

The presentation explores the existing interactions between the scientific community and stakeholders through the example of the French Foundation for Research on Biodiversity (FRB). It highlights the generated outputs, leading to improved coordination of French research programs and a better positioning of FRB at the international level. Besides, the role of the FRB in the functioning of IPBES is emphasized.

#### **Olivier Dangles, France**

Olivier Dangles, is an investigator (DR2) at the IRD who has a broad interest in scientific issues related to biodiversity and climate change in the neotropics. He has published over 70 articles in international peer-reviewed journals and co-authored 2 books. Olivier Dangles has been involved in 11 international projects either as a director, Work package leader, or research associate (ANR, European Union, NSF, FRB, FFEM...). During these projects he collaborated with > 30 scientists with different background (ecology, agronomy, social sciences, genetics, physics, and resource management) in both developed and developing countries. He is the recipient of the 2nd IRD "Science au Sud" Prize in 2010. Several of his publications got a broad coverage in the media both nationally and internationally. See more details at <http://dangles.naturexpose.com>

## Jean-Joinville Vacher, France

Agronomic engineer, Jean-Joinville Vacher is Deputy Director of IRD Directorate General for Science. Director of research, specialist of bioclimatology, he worked on plants and crops systems adaptation to climate constraints in Mediterranean region and Andean highlands, on which he has published over 60 scientific articles and many chapters of books. He also has an extensive experience of research management and held the positions of IRD Representative in Bolivia, Director of the French Institute for Andean Studies and, more recently, Regional Counselor for cooperation at the French Embassy in Peru.

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### ✓ Biodiversity and climate change, scientific challenges and breakthroughs

There are a range of approaches that can be used to model the impacts of climate change on biodiversity. Ecological niche modeling, coupled with climate scenarios from GCMs can estimate the range shifts of species, and provide scenarios of biodiversity loss. Research gaps include the full incorporation of habitat into these models, and the articulation of biodiversity impacts with those of other sectors to better understand land use transitions. However, the big question remains: What do you do to prevent this mass biodiversity loss if even protected areas are no longer robust conservation strategies?

## Andy Jarvis, Colombia

Dr. Andy Jarvis is the Director of the Decision and Policy Analysis Area in the International Centre for Tropical Agriculture (CIAT) and is a Theme Leader on the CGIAR Research Program for Climate Change, Agriculture and Food Security, based in Cali, Colombia. Dr. Jarvis has 10 years experience of cutting edge scientific research in developing countries to support the goals of alleviating poverty and protecting essential ecosystem services of importance to humanity. His research has focused on the use of spatial analysis and environmental modelling to address issues such as agricultural biodiversity conservation, adaptation to climate change, and maintenance of ecosystem services. Over the past ten years Dr. Jarvis has published over 50 articles, book chapters or books, with over 20 of these in peer-reviewed articles published in international journals. Dr. Jarvis has also worked as a consultant to the Food and Agriculture Organisation (FAO) on developing climate change strategies to conserve agricultural biodiversity, and been a consultant on a variety of projects for the European Union, Global Environment Facility amongst others. In 2003 Dr. Jarvis won the Crop Science Society of America (CSSA) C-8 Genetic Resources award for best research paper stemming from his work on conservation prioritization research for wild peanuts in Latin America, and in 2009 received the prestigious Ebbe Nielsen award for innovative research in bioinformatics and biosystematics.

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### ✓ AFD strategy and response to biodiversity and climate change challenges

Agence Française de Développement is the operator for France's bilateral development finance mechanism. It is a public industrial and commercial institution with the status of specialized financial institution. AFD's teams are based in Paris and

Marseille and in a network of seventy agencies and representations in developing countries and the French overseas provinces. AFD is also responsible for the management of the French Global Environment Facility (French GEF), which cofinances projects that reconcile environment and development. The presentation focuses on the following issues: i) Climate Change: AFD commitments, systematic measurement of carbon footprint and selectivity – ii) Biodiversity: Conservation, restoration and management of ecosystems, integration of biodiversity in policy making (mainstream) and partnerships.

#### **Carl Bernadac, France**

He holds a master's degree in Public administration / International Development from University of Harvard and he is a graduate of Ecole Supérieure de Commerce of Rouen. He has been the deputy director of the regional agency of AFD in Bogota since September 2013. His experience includes 6 years in an NGO to aid refugees, mainly in Africa. He also founded a consultancy office in Spain before joining the AFD in 2004, where he served the Strategy Department and, from 2007, the Operations Department as Energy / Climate project manager and sectoral economist.

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#### ✓ **Biodiversity networks and scientific challenges**

Parting from the high level political target of reducing biodiversity loss, I remind of the 2010 CBD target (missed) and the resulting new CBD biodiversity strategy 2011-2020 (Aichi targets) I will highlight the targets most relevant for biodiversity scientists, and explore the relation to the new Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES), with a focus on European contributions to the so-called „Fast Track Assessments“, to be delivered in 2015 (particularly the climate/biodiversity scenario development). I will explain the role of DIVERSITAS, which is now integrated into the FUTURE EARTH initiative, and shortly introduce the ESFRI Lifewatch, FP7 EU-BON (GEOSS-related), OpenUp and BHL-Europe projects. The latter are dealing with biodiv data mobilisation, which is crucial for understanding and modelling possible effects of climate change on biodiversity (and vice versa!). The Global Biodiversity Facility (GBIF) plays a crucial role in data management, and I remind of GBIF's mission to remedy the asymmetry between data-rich developed nations (storing millions of tropical specimens in their museums) and biodiversity-rich countries with limited access to this information. CETAF (Consortium of European Taxonomic Facilities – Natural History Museums) now takes a leading role in coordinating European biodiversity initiatives, including capacity building and ABS issues.

Data management: A huge number of publications combine climate scenario data (eg from the IPCC /Potsdam Institute) and biodiversity data to model future species distributions and eventual extinctions. However, the resulting maps have to be treated with caution, and only very few papers include biotic interactions.

#### **Klaus Riede, Germany**

Klaus Riede studied zoology and biocybernetics at Frankfurt and Tuebingen (Germany). After his PhD on grasshopper neuroethology at the Max-Planck-Institute for Behavioural Physiology in 1982, he investigated insect communication in Argentina, Ecuador and Malaysia, using bioacoustic assessments to document species richness in highly diverse tropical rainforest canopies. Since 1997, he worked at the Center for Development Research, University of Bonn and the Zoological Museum Alexander Koenig, where he managed major biodiversity database projects, such as a global geodatabase on migratory species (Global Register of Migratory Species - [www.groms.de](http://www.groms.de)) and a multimedia database on Orthoptera. Besides insect bioacoustics, his present research and teaching topics are biodiversity informatics, its application for conservation and relevance for international conventions and initiatives such as the UNEP-Convention for Migratory Species and the Global Biodiversity Information Facility (GBIF).

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#### ✓ **Impacts of fire, changes in climate and in land use on savannas of Central Brazil**

I start by summarizing key challenges for research on biodiversity in Brazil, compiled from on-going governmental programs focused on conservation, information gathering, and sustainable use of biodiversity and on climate change. I highlight the importance of ecosystems processes on biodiversity conservation, by examining the impacts of fire, changes in climate and in land use on the cerrado of Central Brazil. The cerrado is the most extensive savanna ecosystem of South America and a biodiversity hotspot, harboring a diverse flora (>7,000 species) with high levels of endemism. More than 50% of the cerrado's approximately 2 million km<sup>2</sup> has been converted into pasture and agricultural lands and it is uncertain how the remaining

areas will respond to increasing pressures from land use and climate change. I discuss how fire, nutrients and species traits regulate plant community responses to rising CO<sub>2</sub> and climate change, exploring constraints to forest expansion into savanna environments. Predicted changes in climate will likely reverse a natural process of forest expansion, observed in the region over the past few millennia, accelerating tree cover loss through feedbacks involving fire and resource limitation, and counteracting expected CO<sub>2</sub> stimulation effects. I also introduce a conceptual framework for predicting changes on savanna vegetation structure, highlighting the need for mechanistic models to accurately simulate cerrado vegetation dynamics under climate change scenarios. Any effective research agenda to minimize the impacts of changes in land use and climate warming must necessarily include mitigation efforts and fire management. I conclude by emphasizing the susceptibility of the Amazon Forest to the current land-use changes in the cerrado region.

**Augusto César Franco, Brazil**

Dr. Augusto Cesar Franco is full professor at University of Brasilia where he had served as coordinator of the Graduate Program in Botany and as head of the Botany Department. His field of interest is tropical plant ecophysiology. His research integrates investigations into plant physiological processes with environmentally pressing issues of climate change and human effects on the natural landscape. He was a member of the International Group for Scientific Monitoring of the Pilot Program to Conserve the Brazilian Rain Forest and of several expert panels for Brazilian National Counsel of Technological and Scientific Development (CNPq). He was Robert F. Kennedy Visiting Professor at Harvard University and Alexander von Humboldt fellow in the Darmstadt University of Technology, Germany. Professor Franco holds a B.S. in Ecology from the University of Rio de Janeiro, an M.S in Ecology from the University of Brasilia and a Ph.D. in Biology from the University of California at Los Angeles.

## Wednesday 5, March

### WORKING SESSION 1: AMAZON ECOSYSTEM

✓ **Project BioCuenas – Andean Amazonian Water Resources and Biodiversity**

The water services and rich biodiversity that the Andean-Amazon region contains are essential to the welfare and development of the local people, many of whom are among the poorest in the world. Climate change, changes in land use, and the construction of large infrastructure, are threatening the headwaters of the basin and creating implications for the hydrology and biogeochemistry of the entire Amazon basin. Managing the impacts and conflicts generated by these threats on the natural resources requires adopting an integrated ecosystem approach to watershed management. The project BioCuenas focuses on five basins: Alto Mayo River Basin in Peru, and the Orito, Mocoa, Guineo, and Orteguenza basins in Amazonian Piedmont, Colombia. The overall objective of the project is to promote the conservation of the basin through ecosystem management, improve human welfare, and conserve the abundant biodiversity in the Amazonian areas of Peru and Colombia. The project incorporates both political and educational institutions. Strong scientific knowledge and local community engagement will enable the conservation and watershed management of the Andean-Amazonian areas of Peru and Colombia. The four components of the Project are Science, Management and Governance, Capacity Building and Monitoring. BioCuenas is financing scientific investigation in the areas of biodiversity, ecohydrology, hydrology, socioeconomics and economic valuation of the ecosystem services.

**Ulla Helimo, Peru**

Ulla Helimo is a biologist, native of Finland, living in Peru for several years. B.Sc. in Environmental Science from University of Kuopio and a M.Sc. in ecology and biodiversity studies from the University of Turku, Finland, she is currently a Ph.D. candidate at the geography department in Turku. She is the Water Resources and Biodiversity Project Coordinator at Conservation International Peru. Before joining Conservation International, she worked for four years at the Finnish Embassy

in Lima, Peru, as a Cooperation Adviser to the Andean countries (Bolivia, Colombia, Ecuador, and Peru). Before that she worked in the Peruvian Amazon in a Finnish funded conservation project BioDAMAZ, and as a project manager in an environmental consultancy company Biota Tech in Lima. She is in charge of the Conservation International's project *BioCuencas* and lives currently in Moyobamba, San Martin, Peru.

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### ✓ **Understanding the dynamics of hybrid zones in the Amazon Forest**

Understanding the dynamics of hybrid zones can offer us multiple insights into processes of speciation, past and recent contacts between diverging taxa, and on how organisms respond to climate change. While the combination of notable recent advances in both molecular techniques and data analyses allowed a better understanding of the dynamics of hybrid zones in European and North-American regions, the fact is that those processes are still largely unknown in Neo-Tropical ecosystems. In collaboration with different institutions in Brasil, we have started a series of projects aimed at filling this gap. In this presentation, I focus on the recent dynamics of the hybrid zone formed by two toad species, *Rhinella marina* and *R. schneideri*. In addition, I also use data from other regions where the first species was introduced and became an aggressive invasive pest. I suggest that the analysis of hybrid zones in a context of climate change may offer a powerful tool to both understand and predict patterns of biodiversity in the future.

### **Nuno Ferrand, Portugal**

Nuno Ferrand de Almeida, 50 years, is a biologist, Professor at the University of Porto, Portugal, Director of the CIBIO/InBIO, the Research Center in Biodiversity and Genetic Resources and the Portuguese Associated Laboratory in this field (<http://cibio.up.pt>), and Director of the Natural History Museum at the same University. His main research interests are centered in the field of evolutionary biology, particularly in the documentation of the current patterns of genetic diversity in natural populations and the understanding of the evolutionary processes that were at their origin. He is also involved in the investigation of the molecular basis of the initial stages of reproductive isolation. He has authored more than 100 publications in SCI journals, as well as multiple books, and is responsible for a PhD program in Biodiversity and Evolution with strong links to South America and Africa.

## **WORKING SESSION 2: ANDEAN ECOSYSTEM**

### ✓ **Research priorities in the Andes**

Climate change will displace current vegetation zones both altitudinally and latitudinally with overall narrowly distributed species and vegetation types will be most affected. However, both altitudinal and latitudinal ranges and diversity patterns are incompletely understood. It is generally accepted, that the upper and middle elevations of the Andes are centres of diversity in herbs and shrubs and overall centres of endmicity. Species in this altitudinal band tend to have narrow latitudinal distributions and latitudinal distributions appear to be much narrower near the Equator, i.e., in the tropical Andes. Altitudinal distributions of taxa are incompletely understood. The very high elevations, possible the area which will be most affected by climate change, are very poorly documented and the common assumption that species at the upper limits of plant growth are widespread is at least unsubstantiated, probably incorrect. In order to better understand patterns of distribution and diversity, a concerted effort for a better documentation both up and down the Andes and along the Andes is urgently required. This involves databasing of existing collections, identification of collection gaps, critical taxonomical work



and comprehensive databasing of species and vegetation data. In a next step “accelerated biodiversity assessments” via genetic barcoding might further speed up the exploration of patterns. Additionally, a higher-level comparison of species inventory can help to provide a more rough-grained picture of the structure of Andean habitats. Based on fine-scale pattern of diversity and endemism a system of corridors and reserves can be identified, which help to preserve biodiversity and open pathways for climatically induced migration. Assisted migration, especially of ecological keystone species, might provide a complementary strategy.

### Maximilian Weigend, Germany

I studied Biology at the University of Regensburg (Germany) in 1989, after the “Vordiplom” I took my Bachelor of Science (Honours) in Botany at the University of Natal/Pietermaritzburg in 1993. In 1993 I started my doctorate on the phylogeny of the Andean plant family Loasaceae at the Ludwig-Maximilians-Universität München (Germany), which I concluded in 1997. These studies were sponsored by the Studienstiftung des Deutschen Volkes. I performed a postdoc position from 1999—2000 funded by the German Academic Exchange Service (DAAD) at the New York Botanical Gardens (Lewis and Dorothy Cullman-Program for Molecular Systematic Studies). From 2000—2011 I worked as scientific assistant at the Institut für Biologie - Systematische Botanik und Pflanzengeographie, Freie Universität Berlin. Since June 2011 I am Full Professor for Plant Biodiversity at the Rheinische Friedrich-Wilhelms-Universität Bonn and since August 2011 Director of the Botanical Gardens of Bonn University. My key research interests are taxonomy, systematics and evolution of flowering plants, floral ecology and economic botany. I authored over 100 papers, over 50 of them in peer-reviewed journals.

## WORKING SESSION 3: COASTAL ECOSYSTEM

### ✓ Examples and identification of priority areas of common interest and innovative partnerships

The drainage basin in the *continuum*: “*low river basin –wetlands –delta –coastal lagoon –estuary –estuarine plume in the sea*” is the optima level towards a successful ecosystem-based management in biocomplex coastal systems. The gradient of habitat heterogeneity strongly connected in coastal zone since **protection** of resources, **rehabilitation** of habitats, **restoration** of ecosystems, **strengthen** coastal resilience, and finally to **fortify** the coastal economy, is the strategy to deal with climate change impacts in the coastal zone.

The **Detection, Attribution and Prediction of Global and Large scale Regional Change** are goals for the **Global Observing Systems of the United Nations**. Coastal Areas are particularly sensitive to global change, but there is a variety of limitations to universal coverage of observations.

The **Coastal module** of the **Global Terrestrial Observing System (C-GTOS) of the United Nations**, considers **Sentinel Ecosystems** to address these goals for the **terrestrial, wetland and freshwater ecosystems** of the **coast**. A necessary step in the development of **C-GTOS** is the examination of current definitions of coastal areas by anticipated users and information providers, and identification of potential coastal networks and sites.

The framework for **Sentinel-Ecosystems** must be a Network-Strategy in Latin America to develop a required instrument for global observation. The focus will give us a tool to give the on-time-alarm at regional level for observations, study, and comprehension on global climate changes. This focus presents some clear advantages. First: Sentinel ecosystems are directly useful to long-term observations of representative areas in order to evaluate other type of ecosystems. Secondly: additionally the strategy is a tool to build institutional capacity, to obtain frequent and secure information with high quality, validation and evaluation of models at great scale, and to redesign models for comparative global changes. Third: the

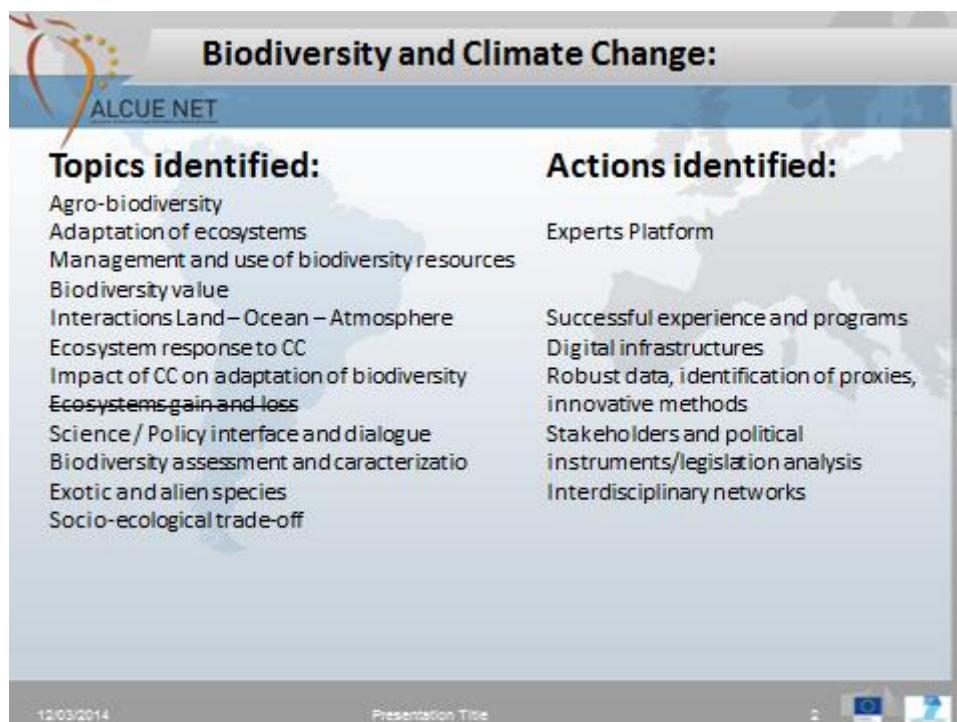
strategy link networks with regional common interest towards sustainable ecosystems monitoring to increase knowledge, use, and conservation of Sentinel ecosystems.

### **Alejandro Yáñez-Arancibia, Mexico**

El Dr. Alejandro Yáñez-Arancibia es miembro de la Academia Mexicana de Ciencias desde 1983. Biólogo, Magister en Ecología Marina por la Facultad de Ciencias de la UNAM, Doctor en Ciencias del Mar y Limnología por el Instituto de Ciencias del Mar de la UNAM, y Posdoctorado en Ecología y Manejo de Ecosistemas Costeros por la Universidad Estatal de Louisiana USA. Su experiencia abarca temas de manejo-ecosistémico en el Golfo de México; manejo integrado de la zona costera; cambio climático y vulnerabilidad costera; interacciones ecológicas humedales-lagunas-estuarios-océano; sustentabilidad ambiental del desarrollo económico; gestión y evaluación ambiental estratégica. Su obra académica en numerosos artículos científicos y 25 libros es reconocida internacionalmente. Fue Director Fundador del Programa (hoy Instituto) EPOMEX del Golfo de México en la Universidad Autónoma de Campeche. Ha sido Profesor/Investigador en el Instituto de Ciencias del Mar y Limnología UNAM, en la Universidad Estatal de Louisiana LSU, en la Universidad de Carolina del Norte ECU. Desde 2005 es Profesor Visitante permanente del Consorcio de Universidades del Cono Sur para el Posgrado Internacional de Manejo Costero MCI-Sur. En 1990 obtuvo el Premio Internacional NAGA otorgado por *Living Aquatic Resources Management* ICLARM (Sudeste Asiático), por la mejor contribución científica de un autor de países en desarrollo. En 2007 obtuvo el Premio Internacional NIERING otorgado por *Coastal & Estuarine Research Federation* (USA) por su labor de investigación y docencia internacional en ecología estuarina. En 2010 obtuvo la Cátedra Internacional *Thomas W. Rivers* de Profesor Distinguido en Asuntos Internacionales, otorgado por el Instituto de Ciencias Costeras y Política de la Universidad de Carolina del Este del Estado de Carolina del Norte USA. En 2011 fue electo Presidente del Comité Internacional de la Federación de Investigaciones Costeras y Estuarinas CERF USA, para el periodo 2011 a 2015. Desde 1998 es Investigador/Profesor Titular en el Instituto de Ecología A. C. INECOL, del sistema CONACYT en México.



Documents elaborated during the meeting





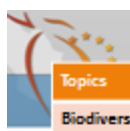
## Biodiversity and Climate Change:

**Topics identified:**

- Biodiversity assessment
- Baseline data and CC
- Policy
- Biodiversity and ecosystems
- Adaptation and mitigation

- Management and sustainable use of biodiversity (continental and marine biomass)
- Multifunctional ecosystem and ecosystem resilience
- Adaptation of ecosystems
- Interactions Land – Ocean – Atmosphere
- Ecosystem response to CC
- Impact of CC on adaptation of biodiversity
- ~~Ecosystems gain and loss~~
- Science/ Policy interface and dialogue
- Biodiversity assessment and characterization
- Exotic and alien species
- Socio-ecological trade-off
- Mitigation: PAs

12/03/2014 Presentation Title 3



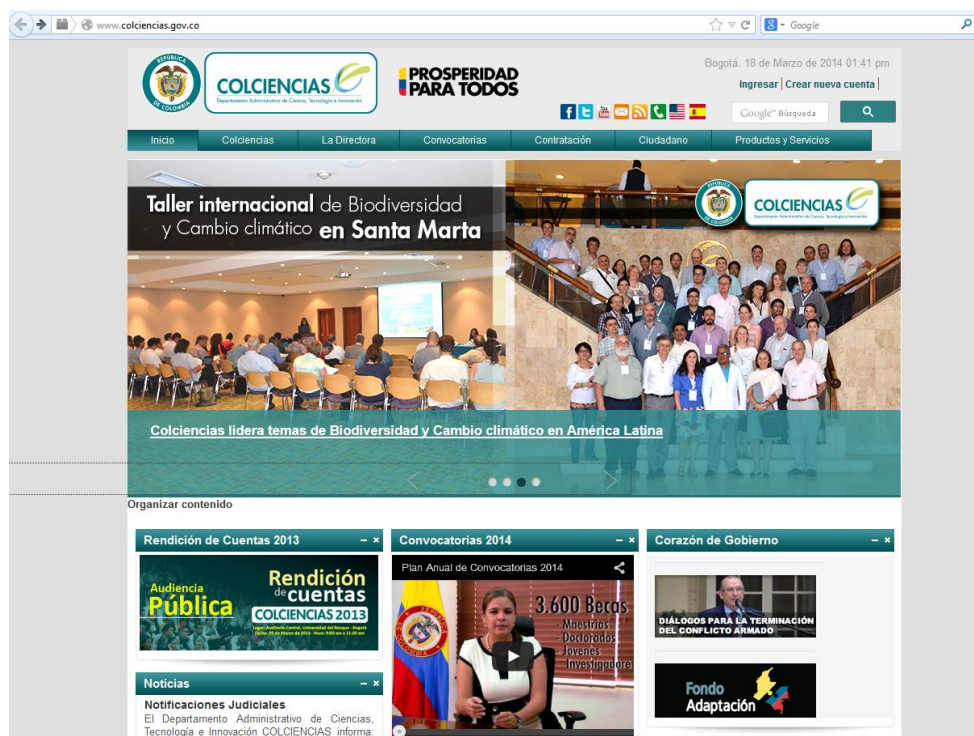
| Topics                                    | Sub-topics                                                                                                                                                                                                                                                                                                                                     | Actions                                                                                                                                                                                                                                                                               |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Biodiversity assessment and monitoring    | <ul style="list-style-type: none"> <li>- Ecosystem approach to exotic and alien species</li> <li>- Sentinel species and communities</li> <li>- Innovation for biodiversity inventoring (from DNA to remote sensing)</li> <li>- Raw data on species distribution</li> <li>- Biodiversity values &amp; ecosystem services</li> </ul>             | <ul style="list-style-type: none"> <li>- Strengthen long-term biodiversity and climatic monitoring</li> <li>- Capacity building and knowledge transfer at all levels from communities to academics (taxonomy, databases, technical platforms, twin labs)</li> </ul>                   |
| Observatory networks                      | <ul style="list-style-type: none"> <li>- Integrated research between earth, life and social sciences</li> <li>- Modelling across scales and disciplines</li> </ul>                                                                                                                                                                             | <ul style="list-style-type: none"> <li>- Legacy data recovery, data quality, open access</li> <li>- Mapping of existing programs</li> <li>- Joint research programs and data inter-operability/sustainability/access/analysis infrastructures</li> </ul>                              |
| Ecosystem-based adaptation and resilience | <ul style="list-style-type: none"> <li>- Landscape attributes (connectivity, multifunctionality, sustainable use)</li> <li>- Role of biodiversity in ecosystem resilience</li> <li>- Ecosystem vulnerability and response to climate change</li> <li>- Socio-ecological trade-offs</li> <li>- Science/policy interface and dialogue</li> </ul> | <ul style="list-style-type: none"> <li>- Developing standard methodologies and tools for vulnerability assessment</li> <li>- Developing communication strategies, knowledge transfer</li> <li>- Developing platforms for better informed decision making under uncertainty</li> </ul> |

12/03/2014 Presentation Title 4

[Press release & dissemination articles](#)



Source: ALCUE-NET, News and events, <http://alcuenet.eu/news.php?id=15>





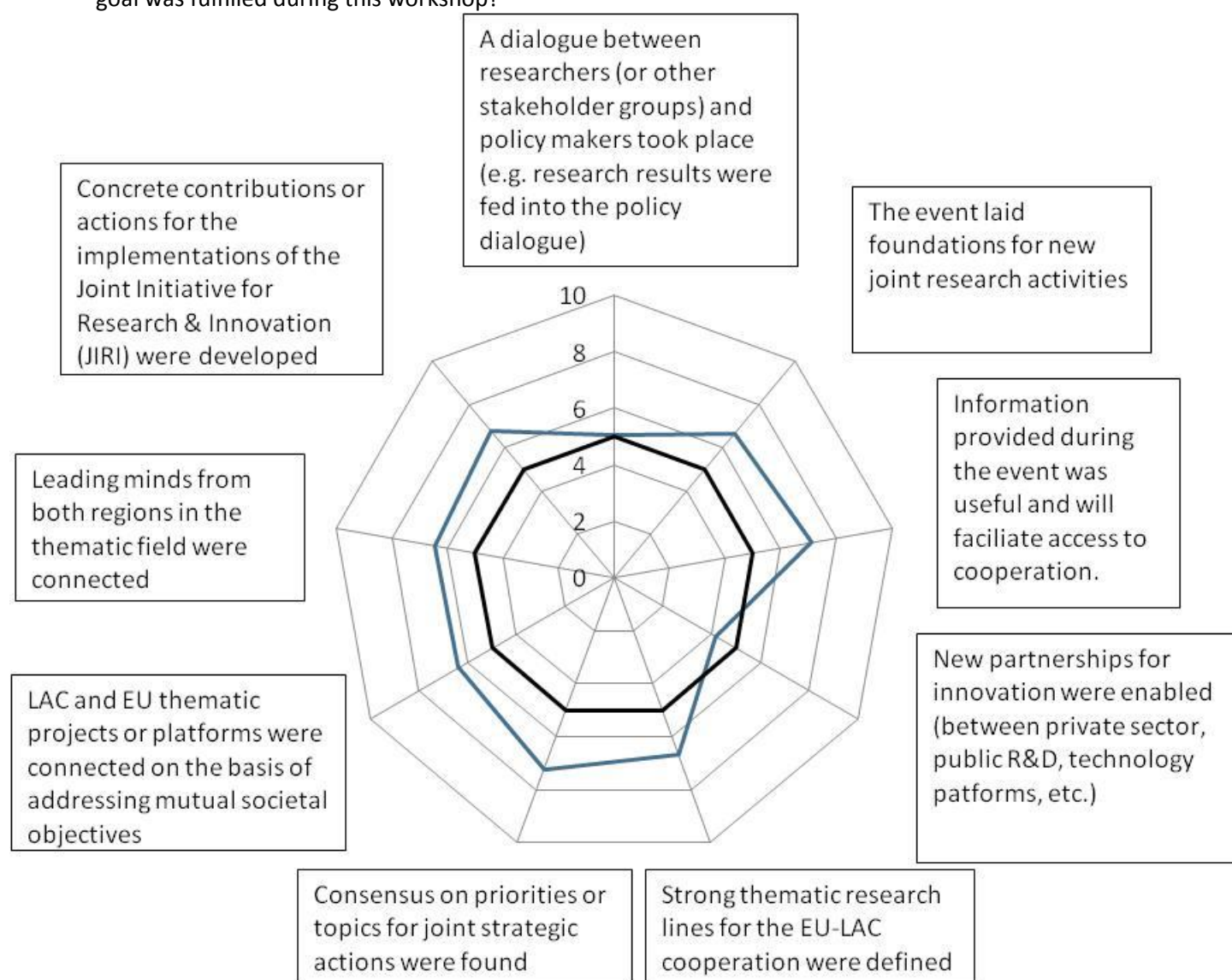
**Source:** Colciencias web page at <http://www.colciencias.gov.co/noticias/colciencias-lidera-temas-de-biodiversidad-y-cambio-clim-tico-en-am-rica-latina>

### Event evaluation questionnaire results (in coordination with ZSI)

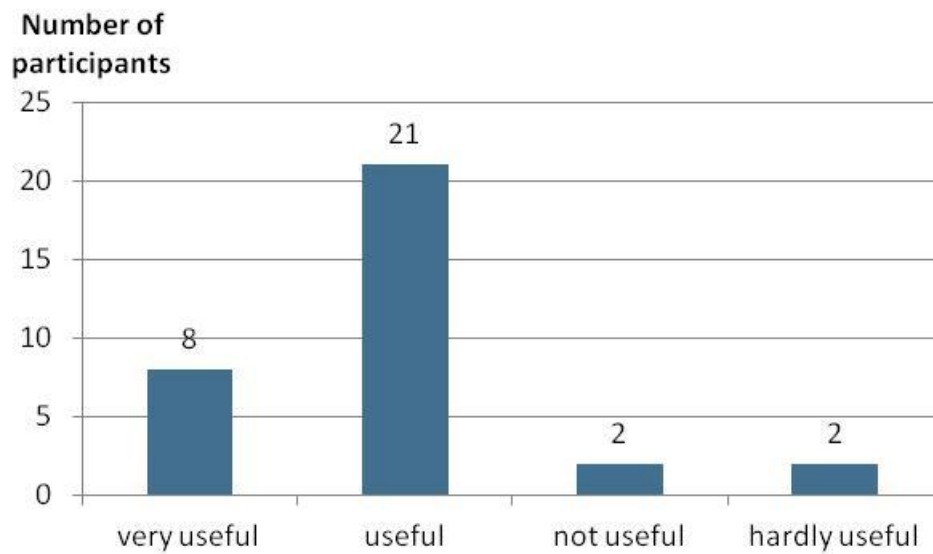
An evaluation questionnaire elaborated by ZSI has been distributed to all the participants the last day of the meeting. An online lime survey has been fed with the answers given by 33 volunteer participants.

The answers have been summarized in the following graphs:

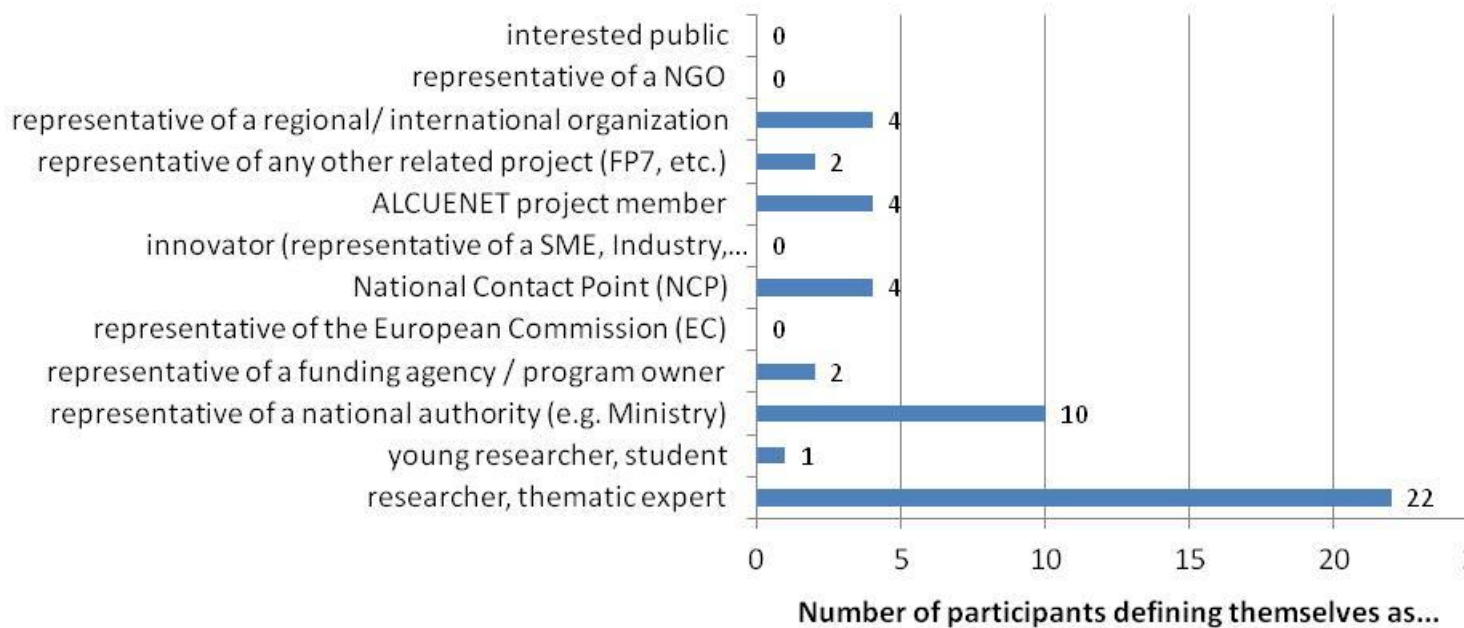
1. The main goals, that we wanted to acheive with this event, are shown in the star underneath. How each goal was fulfilled during this workshop?



2. How was this workshop for your work?



3. You participate in the event in your function as a



Event pictures



Dr. Gabriela Delgado, during the opening words



Ms. Moniza Silenzi during her presentation about the objective of the ALCUE NET Project





Ms. Sandrine Serre, during her presentation



Third day Working Session.



Workshop participants



## Acronyms

|             |                                                                                |
|-------------|--------------------------------------------------------------------------------|
| ALCUE NET   | Latin America, Caribbean and European Union Network on Research and Innovation |
| CYTED       | Ibero- American Programme for Science, Technology and Development              |
| EU          | European Union                                                                 |
| EULAC       | European Union, Latin America and the Caribbean                                |
| FP7         | Seventh Framework Programme                                                    |
| JIRI        | Joint Initiative for Research and Innovation                                   |
| LA          | Latin America                                                                  |
| LAC         | Latin America and the Caribbean                                                |
| MINCYT      | Ministerio de Ciencia, Tecnología e Innovación Productiva (Argentina)          |
| SOM         | Senior Officials Meetings                                                      |
| STI         | Science Technology and Innovation                                              |
| TORs        | Terms of references                                                            |
| WG          | Working Groups                                                                 |
| COLCIENCIAS | Administrative Department of Science, Technology and Innovation of Colombia    |
| IRD         | Institute of Research for Development                                          |