

## CLIMATE CHANGE IMPACTS AND VULNERABILITY IN THE IBERO-AMERICAN REGION

Evidence of climate change has been recorded in all Latin American RIOCC countries:

- Substantial changes in rainfall and increases in temperature have been observed over recent decades.
- The nature and magnitude of climate change and the sectors affected in the region are wide-ranging.
- Projections suggest that impacts associated with future climate change scenarios will increase countries' vulnerability.
- It is estimated that climate change's impacts will affect every sector and every area of the region to some extent.

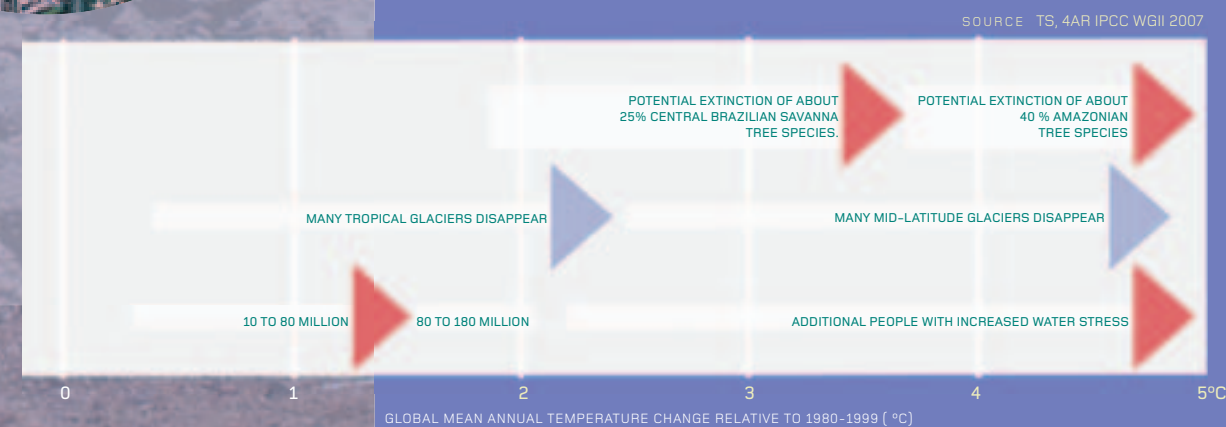


Climate change's main observed and projected impacts in the Latin American region:

- Increase in climate-related disasters since the 1990s.
- Acceleration of glacial retreat, impacting water supply and hydro-electric output.
- Increase in tropical forests' sensitivity to fires.
- Increased drought frequency.
- Impacts on biodiversity: reduction and even extinction of amphibian populations due to high temperatures; alteration of coastal ecosystems due to rising sea levels or an increase in hurricane frequency and intensity; etc.
- Impacts on agriculture: lower crop and livestock yields; changes in agricultural cycles; alteration of pest and disease dynamics, etc.
- High vulnerability of large, low-lying coastal areas to a rise in average sea levels.
- Substantial sensitivity of water resources to climate change: forecasts suggest the population suffering water availability problems as a result of climate change will experience a net increase of 12–81 million by 2020 and of 79–178 million by 2050.
- Power generation, agriculture, health, etc. will be affected by water resources' vulnerability.
- Many human diseases affecting the region, such as malaria, dengue fever and other vector-borne diseases, are directly linked to climate parameters.



Examples of regional impacts in Latin America associated with varying levels of global warming.



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DESIGN MARÍA JOSÉ SUBIELA / CARMEN HIDALGO DE CISNEROS

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NIPO 770-09-335-4

www.lariocc.net  
buzon-dgoecc@mma.es



# PIACC

## Ibero-American Programme on Climate Change Adaptation

The RIOCC (*Red Iberoamericana de Oficinas de Cambio Climático* — Ibero-American Network of Climate Change Offices) is a partnership of 21 countries belonging to the Ibero-American Community of Nations and has been in operation since 2004.

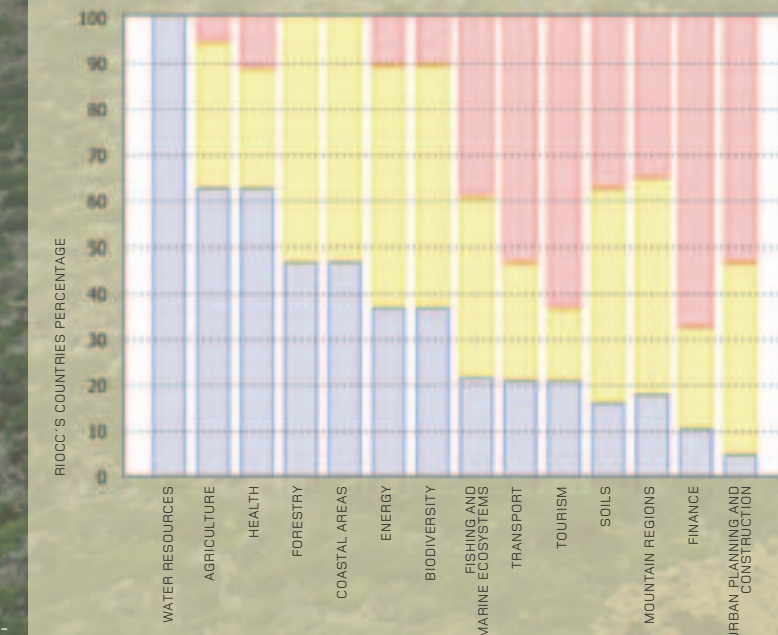
The PIACC (*Programa Iberoamericano de Adaptación al Cambio Climático* — Ibero-American Programme on Climate Change Adaptation) is the instrument used by the RIOCC since 2005 to implement climate change adaptation measures.

The PIACC's objectives are:

- To foster development and implementation of adaptation strategies in the Ibero-American region based on countries' interests and respective capacities.
- To support members in assessing impacts, vulnerability and climate change adaptation options.

Percentage breakdown of climate change adaptation priorities in RIOCC countries across a spectrum of 14 socio-economic sectors and ecological systems.

Legend:  
High priority (Blue)  
Medium priority (Yellow)  
Low priority (Red)



The priority sectors targeted by the PIACC, and hence the areas in which it is most active, as set out in the Analysis Document on Climate Change Adaptation in Ibero-America, are as follows:

- Very high priority (unanimous): Water Resources.
- High priority (most members): Agriculture and Health.
- Priority (significant number of countries): Forestry, Biodiversity, Energy and Coastal Areas.

([www.lariocc.net](http://www.lariocc.net) > Documentación > PIACC > Documento de análisis [currently only available in Spanish]).



# RIOCC and UNFCCC: PIACC and NWP

The RIOCC promotes sustainable development in the Ibero-American region by mainstreaming the fight against climate change and adaptation to its effects into development plans and co-operation programmes, addressing the issues from a regional perspective.

Co-ordination and consensus among members is a cornerstone of the RIOCC's work in the fields of systematic climate observation and research, adaptation, Clean Development Mechanism implementation, bilateral and multilateral development co-operation, capacity building, awareness raising and communication.

The PIACC's specific objectives, addressed from the perspective of impacts, vulnerability and adaptation, are to:

- Strengthen institutional frameworks.
- Generate synergies with regional institutions and climate change adaptation initiatives throughout Ibero-America.
- Support systematic climate observation and research.
- Share and disseminate knowledge, experiences, tools and methods with which to assess impacts, vulnerability and climate change adaptation.
- Develop participatory climate change adaptation projects in priority sectors and systems, placing particular emphasis on cross-border, cross-sectoral and/or pan-sectoral projects.
- Support information and communication activities.
- Produce assessment reports on impacts, vulnerability and climate change adaptation in Ibero-America.

Within the context of the United Nations Framework Convention on Climate Change (UNFCCC), adaptation has become a key issue in the international fight against climate change and constitutes one of the pillars on which negotiations are based.

The UNFCCC Nairobi Work Programme (NWP) on impacts, vulnerability and climate change adaptation implements actions in 9 work areas to support NWP participants, *in particular developing countries, including the least developed countries and small, developing island states, in order to:*

- *Improve their understanding and assessment of impacts, vulnerability and climate change adaptation.*
- *Make informed decisions on practical adaptation actions and measures to respond to climate change on a sound scientific, technical and socio-economic basis, taking into account current and future climate change and variability.*

The NWP and the PIACC share many objectives and there is considerable common ground between the results expected from the NWP and the PIACC's specific objectives.

This convergence has enabled formal links to be established between the NWP and the PIACC and between the UNFCCC and the RIOCC. The RIOCC has thus drawn up a series of "action pledges" to contribute to achievement of NWP objectives. The RIOCC has two focal points for contact with the NWP, one permanent (Spain) and the other rotational (Chile, at this document's time of writing).

(unfccc.int > Adaptation > Nairobi Work Programme > Ibero-American Network of Climate Change Offices) (www.lariocc.net > Documentación > PIACC > Documento de compromisos [currently only available in Spanish])

# PROJECTS AND ACTIVITIES

Through the PIACC, the RIOCC works to increase and channel a large proportion of Spain's contribution to the development co-operation performed in the region by multilateral and regional organizations and ensure that proper consideration is given to mainstreaming impacts, vulnerability and climate change adaptation when setting objectives.



## PROJECTS

### UNDP-MDG Fund [www.undp.org/mdgf]

Description: agreement between the United Nations Development Programme (UNDP) and the Spanish Government, in place since 2006.

Objective: to accelerate achievement of the Millennium Development Goals (MDGs) and support initiatives to reform the United Nations' country-level structure. The thematic windows include "Environment and Climate Change".

Projects under this thematic window should impact national policy, strengthen local institutions and enable them to fulfil their responsibilities in this field and support specific demonstrative local-level initiatives. Six such projects have been selected in the Ibero-American region:

- Mainstreaming of ecosystems and climate change adaptation in the Colombian Massif.
- Conservation and Sustainable Management of the Natural and Cultural Heritage of the Yasuni Biosphere Reserve (Ecuador).
- Strengthening of environmental governability in light of climate hazards in Guatemala.
- Local and regional environmental management to administer natural resources and provide environmental services (Nicaragua).
- Mainstreaming of climate change adaptation and mitigation measures (Panama).
- Integrated and adaptive management of environmental resources and climate hazards in High-Andean micro-basins (Peru).



### Regional studies in Ibero-American countries on climate change's economic impact on coastal resources

Description: contribution by the Spanish Government to the United Nations Economic Commission for Latin America and the Caribbean (ECLAC).

Objective: to produce a study to establish climate change's impacts on coastal areas of Ibero-America and perform socio-economic assessment.

The project applies a methodology developed by Spain's University of Cantabria that has been successfully implemented in Spain.

The project will serve to establish changes in marine and coastal dynamics and project expected future alterations based on climate change scenarios; assess the potential effects of changes in marine dynamics on the physical coastal environment and land use; propose adaptation strategies together with corresponding cost estimates; transfer technology, skills and capacities.



### Joint UNDP-UNEP Initiative

Description: capacity-building initiative focusing on climate change mitigation and adaptation in Latin America and Africa, supported by the Spanish Government. The following project is of particular relevance:

- Mainstreaming climate change into national development processes and UN country-level programmes to achieve Millennium Development Goals.

This project, which is applicable to several continents, is being implemented in Ibero-America in Colombia, Nicaragua and El Salvador.

### Mainstreaming climate change into national development processes and increasing resilience in Latin America and the Caribbean

Description: project implemented under the UNEP.

Objective: to strengthen national capacities and Latin American and Caribbean ecosystems' and economies' long-term resilience.

The aim of the project is to mainstream responses to climate change into national development processes; expand knowledge exchange to define viable and cost-effective adaptation measures; and ensure these measures are mainstreamed into decision-making processes, development priorities, budgets and sectoral planning.

### Climate change adaptation and disaster risk reduction in Ibero-America: sharing a common agenda

Description: project implemented by the Regional Unit for the Americas under the International Strategy for Disaster Reduction (ISDR).

Objective: to establish links between activities and initiatives being undertaken in Ibero-America in the fields of disaster risk reduction and climate change adaptation.

This project is implemented under a biannual Work Plan through actions that fulfil both PIACC objectives and the Hyogo Framework for Action.

### Sustainable Energy and Climate Change Initiative (SECCI) of the Inter-American Development Bank

[www.iadb.org/Energia Sostenible y Cambio Climático]

Objective: to support the Ibero-American region's urgent need to develop environmentally and economically viable energy sources.

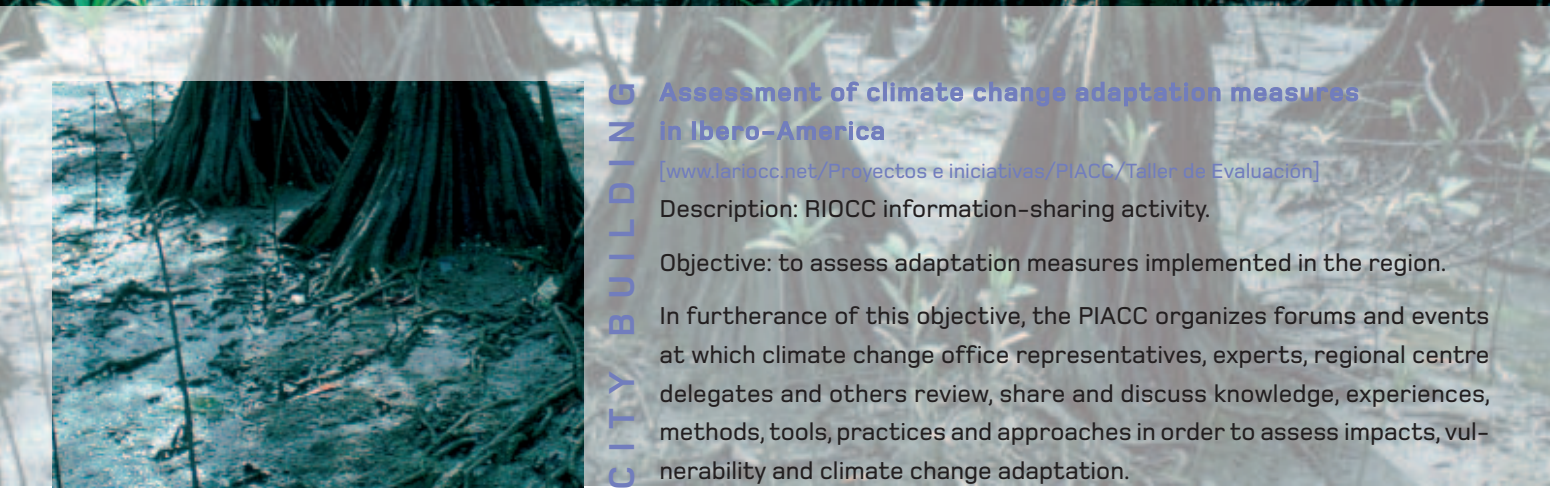
The initiative is defined around 4 strategic pillars, one of which is climate change adaptation.

### MIA Project – Climate Change Mitigation and Adaptation in Sustainable Forestry Management in Ibero-America

[www.proyectomia.com]

Description: a co-operative project born out of the joint efforts of various institutions: the INIA (Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria — National Agricultural and Food Technology Research Institute), in Spain; CIFOR (Centre for International Forestry Research), based in Indonesia; CATIE (Centro Agronómico Tropical de Investigación y Enseñanza — Tropical Agricultural Research and Higher Education Center), located in Costa Rica; the UPM (Universidad Politécnica de Madrid — Polytechnic University of Madrid), in Spain; and the INIA System Research Centres in Ibero-America.

Objective: to generate information and knowledge and strengthen Ibero-American research institutions' and the forestry sector's adaptation and mitigation capacities through sustainable forestry management.



### Assessment of climate change adaptation measures in Ibero-America

[www.lariocc.net/Proyectos e iniciativas/PIACC/Tabler de Evaluación]

Description: RIOCC information-sharing activity.

Objective: to assess adaptation measures implemented in the region.

In furtherance of this objective, the PIACC organizes forums and events at which climate change office representatives, experts, regional centre delegates and others review, share and discuss knowledge, experiences, methods, tools, practices and approaches in order to assess impacts, vulnerability and climate change adaptation.

The workshop on assessment of climate change adaptation measures in Ibero-America held in October 2008 was a landmark event and combined sectorally themed sessions (water resources, agriculture, biodiversity and coastal areas), disaster risk reduction and a focused approach to project formulation.

### Training in use of the Eta/CPTEC regional model

Description: course organized by the Brazilian Ministry of Science and Technology and funded by Spain's contribution to the ECLAC.

Objective: to develop the capacity among the region's countries to use and apply regionalized climate scenarios and models, in particular the one developed by the CPTEC (Centre for Weather Forecasting and Climate Study) in Brazil.

Workshops were held in 2008 and 2009. The first focused on understanding and working with regional climate scenarios, while the second addressed application of these scenarios to climate change impact models in each country to assess different sectors' and systems' vulnerability.

### Formulation of Climate Change Adaptation Projects

Description: workshop co-ordinated by the OECC (Oficina Española de Cambio Climático — Spanish Climate Change Office), the UNDP and the ECLAC, funded through the Spanish Government's contribution to the ECLAC.

Objective: to train technical staff from RIOCC countries to integrate climate change adaptation into the project formulation cycle (identification, definition, planning, implementation and monitoring) in sectors and territories highly vulnerable to climate change.

### Strengthening of the Systematic Observation Network in Ibero-America

Description: regular contribution by the Spanish Government to the Global Climate Observing System Co-operation Mechanism.

Objective: to address the Ibero-American region's most urgent needs in the field of Systematic Climate Observation.

The Global Climate Observing System's (GCOS) regional plans for Ibero-America serve as the framework for development of this initiative.

In recent years, projects have been implemented within the GCOS Upper-Air Network (GUAN) and the GCOS Surface Network (GSN) in Peru, Uruguay, Ecuador, Mexico, El Salvador, Colombia and other countries.