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EXECUTIVE SUMMARY

The Second Bi-regional Dialogue was held in the “*Universidad Iberoamericana*” (UNIBE), in Santo Domingo, Dominican Republic on 7 and 8, March, 2011. The Second Dialogue was part of the activities of ENLACE¹ project, and had the objective to set up research priorities of mutual interest, between Europe and Central America, as well as the Caribbean. The First Bi-regional Dialogue was held in Athens, in June 2010.

The Second Bi-regional Dialogue was focused on three Themes of the Seventh Framework Programme for Research and Technological Development, funded by the European Commission, under the International Cooperation area. These selected Themes are as follows: Environment (including Climate Change), Knowledge base Bio-economy (KBBE) and Health.

In order to have a representative opinion in the discussions, the expert’s Dialogue gathered speakers coming from different horizons: European experts, academic researchers of Central America and the Caribbean, and national contact points from Europe and Central America. The event was structured as follows: an introductory session on “The International Dimension of the European Research Framework Programme: Relevance of Networking Activities with Caribbean and Central America” was presented by the ENLACE Project Officer, Paul Vossen. Then, specific feedback presentations were dedicated to Environment, KBBE and Health. Later on, the experts were divided in 3 parallel sessions where the Dialogue took place.

During the Dialogue, the EC representatives were in charge of presenting the Scientific Roadmap for their respective themes and underline priorities for International cooperation. The Central American and the Caribbean experts were in charge of contributing with the discussion by presenting their regional Research priorities in the thematic session, giving a feedback which should be representative of the whole Central America or Caribbean area.

¹ Further information: <http://www.enlace-project.eu/index.aspx>



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Each parallel session had a designated Rapporteur, who was in charge of acting as moderator during the discussions, as well as to present the consolidated results of the dialogue in the plenary session.

The results obtained in the 3 sessions have been consistent across countries and common priorities with Europe have been defined. Regarding the Environment dialogue the topics of primary mutual interest are: the integrated watershed management, and the use and degradation of land and water, and natural and anthropogenic hazards. In the field of food, agriculture, fisheries and biotechnology, the emphasis was on: research on biodiversity to optimize ecological services, use of microorganisms for food and non-food use, food and food chain related issues and optimization of the use of biomass for energy and industrial uses. Concerning to Health Theme, the priorities agreed were: Infectious diseases, Chronic and degenerative diseases and Communicable diseases linked to natural disasters. The details and insights of the discussions are presented in the following pages of this report.



INTRODUCTION

The Second Experts dialogue is in line with the general objective set by the “**Madrid Declaration**: towards a new stage in the bi-regional partnership: innovation and technology for sustainable development and social inclusion” (May 2010) in particular for its contribution to the enhancement of the **bi-regional and triangular cooperation** in *Central America, the Caribbean (CAC) and in the EU*.

The workshop gives priority to identification and **definition of research lines and scientific priorities** that pave the way to new cooperation opportunities as well as enable access to cooperation opportunities to countries with low or no participation in European Programmes.

These areas potentially have several common elements and priorities in terms of research environment and needs. The three parallel sessions encouraged and fed the scientific and political dialogue among the stakeholders involved at regional, intraregional as well as international level.

The aim of the Workshop was to bring together high level of expertise and knowledge from the Caribbean, Central American and Europe in order to identify research lines and scientific priorities of common interest and benefit, and to discuss challenges for EU-CA and EU-Caribbean cooperation that can guide the work of EUCARINET and ENLACE in the next years.

The expert’s dialogue workshop has covered three different Thematic Areas identified as elements of mutual interest:

- Health
- Knowledge-Based Bio-Economy (KBBE)
- Environment

The thematic areas are considered in a broad and inclusive way, all of them covering major sub-themes and fields. Identifying and defining bottom-up **research lines and scientific priorities** can be the basis for fostering new cooperation opportunities for EU and CAC research actors in FP7 and beyond. These research lines are intended as main research priorities that the experts pointed out, shared and discussed on, in order for them to be transferred to the EC as they could evolve in future opportunities for International Cooperation under the three concerned thematic areas.



THE EXPERTS DIALOGUE

Methodology of the Selection of the Central American Experts

The search for the 9 Central American experts that participated in the Second Bi-regional dialogue was conducted by the General Secretariat of the Central American University Superior Council (SG-CSUCA, acronym in Spanish). A call was made among the Research Directorates of the 19 Central American Universities that comprise the CSUCA. The professional characteristics required to be considered as a candidate to participate in the selection process were: **Compulsory:** science and technology experts, representative for their respective regions, English speaking, familiar with international cooperation, sound knowledge of the thematic area and good communication skills; **preferable characteristics:** knowledge of the industrial and private sector.

After the call was made, several CVs were received and a first selection list was made with the names of the candidates that best fulfilled the required characteristics. The list was circulated among the 14 ENLACE partners in order to have their opinion and input. Some of the partners presented their opinion, which in all the cases was taken into consideration for making the final selection. When the final selection list was ready, the researchers were officially notified with a formal invitation from CSUCA, to represent Central America in the Second Bi-regional Dialogue. All the researchers accepted the invitation. Later on, background documentation about FP7 and ENLACE was sent to them to start the preparation for their participation in Santo Domingo. The CVs of the 9 experts can be found in the Annex, at the end of this document.



ENVIRONMENT

BACKGROUND

Environment and International Cooperation

Environmental problems and solutions need to be tackled internationally. The strategic approach for international collaboration of EU environmental research includes identification of major cooperation countries and regions. In line with the EU's commitments and S/T strategies, a coherent set of cooperation activities for major cooperation countries, USA, China, Russia, India, Brazil, and South Africa, and for major cooperation regions, the Mediterranean, Latin America, Asia and Africa in particular, will be continued along the lines set out already in 2008.

The 2010 EU-Latin America and Caribbean (LAC) Summit focused on bi-regional cooperation on "Innovation and technology for sustainable development and social inclusion". The Summit's Action Plan calls for boosting science and technology cooperation between the EU and LAC countries. The activities targeting LAC contribute to sustainability as advocated by the Summit. This requires an integrated approach taking into account the environmental, economic and social dimensions and a balanced involvement of research teams and the relevant stakeholders from Europe and the LAC region in the consortia. Special attention will be paid to the uptake and use of the new knowledge generated and, whenever relevant, to SME participation.

More specifically, international cooperation will be implemented via two mechanisms:

1. Opening of all activities of the Theme to international cooperation.
2. Specific International Cooperation Actions in the areas identified through bi-regional dialogues in third countries/regions and international fora, on the basis of mutual interest and mutual benefit.

International climate change agreements

Climate and resource challenges require drastic action. Strong dependence on fossil fuels such as oil and inefficient use of raw materials expose our consumers and businesses to harmful and costly price shocks, threatening our economic security and contributing to climate change. The expansion of the world population from 6 to 9 billion will intensify global



competition for natural resources, and put pressure on the environment. The EU must continue its outreach to other parts of the world in pursuit of a worldwide solution to the problems of climate change at the same time as we implement our agreed climate and energy strategy across the territory of the Union.

Communication from the Commission - Europe 2020 - a strategy for smart, sustainable and inclusive growth

The EU and its Member States ratified the **Kyoto Protocol to United Nations Framework Convention on Climate Change** (UNFCCC), which aims to strengthen the international response to climate change. By ratifying the Kyoto Protocol, developed countries commit to reducing their collective emissions of six key greenhouse gases by at least 5%. By arresting and reversing the upward trend in greenhouse gas emissions that started in these countries 150 years ago, the Protocol promises to move the international community one step closer to achieving the Convention's ultimate objective of preventing 'dangerous anthropogenic [man-made] interference with the climate system'. Each country's emissions target must be achieved by the period 2008–12, while actual emission reductions will be much larger than 5%.

The Kyoto Protocol agreement is currently being reviewed and talks on commitments for the post-2012 period are ongoing. As part of these talks, the EU participated in the 2007 **Conference of the Parties to the UNFCCC in Bali** (Indonesia) in December 2007, where it was agreed to start formal negotiations on a global climate regime for the post-2012 period and on a 'Bali Roadmap' that sets out an agenda for these negotiations.

The conference, held in December 2007, set an end-2009 (**COP 15 Copenhagen 2009**) deadline for completing the negotiations to allow time for governments to ratify and implement the future climate agreement by the end of 2012, when the Kyoto Protocol's first commitment period ends. The decision explicitly acknowledged the findings of the recent scientific assessment by the UN **Intergovernmental Panel on Climate Change** and recognized that deep cuts in global emissions of greenhouse gases will be required to prevent global warming from reaching dangerous levels.

THEME 6: ENVIRONMENT (climate change)

With environmental concerns having grown in visibility in recent years, this is the time to pursue actions for a sustainable and environmentally friendly Europe. That will require



extensive environmental research and development as we endeavour to contribute to tackling these major 21st century challenges. Environment is a field where collaborative research traditionally has proven to be highly fruitful. Furthermore, the challenges posed by the increasing natural and man-made pressures on the environment and its resources require a coordinated approach at pan-European and international levels. In order to address these challenges, the theme dealing with environment (including climate change) has a budget of €1.9 billion under the FP7 Cooperation programme (2007–13).

The "Environment" programme will be implemented under the following activities and areas:

Climate change, pollution and risks

- Pressures on environment and climate
- Environment and health
- Natural hazards

Sustainable Management of Resources

- Conservation and sustainable management of natural and man-made resources and biodiversity
- Management of marine environment

Environmental Technologies

- Environmental technologies for observation, simulation, prevention, mitigation, adaptation, remediation and restoration of the natural and man-made environment
- Protection, conservation and enhancement of cultural heritage
- Technology assessment, verification and testing

Earth observation and assessment tools

- Earth and ocean observation systems, monitoring methods for the environment and sustainable development



- Forecasting methods and assessment tools for sustainable development

The General Objectives

FP7 environmental research has a twofold objective: on the one hand it is to promote the sustainable management of the environment and its resources through increasing knowledge about the interactions between the climate, biosphere, ecosystems and human activities. On the other hand, it is also to develop new technologies, tools and services that address global environmental issues. Emphasis is being placed on prediction tools and technologies for monitoring, prevention, mitigation of and adaptation to environmental pressures and risks. Specific attention is also being given to informing decision-makers in their design of environmental policy, as well as business leaders and ordinary citizens about the challenges and opportunities they face. ²

RESULTS OF THE DIALOGUE ON ENVIRONMENT

CA Experts: Elizabeth Carazo, Universidad de Costa Rica; Eddi Alejandro Vanegas Chacón, Universidad de San Carlos de Guatemala Guatemala; Matilde Somarriba Chang, Universidad Nacional Agraria, Nicaragua.

EU Experts: Coen Ritsema, Wageningen University, Netherlands; Cesar Carmona-Moreno, European Commission - Joint Research Centre Environment and Sustainability Institute-“Global Environment Monitoring”, Paola Materia, Agency for the Promotion of European Research (APRE), Italy.

Results of the discussions on Environment theme for Central America (CA), and the Caribbean (CAR) by Veronica Violante Francesca Colombo (EU rapporteur).

² Environment concept Note prepared by Agenzia per la Promozione della Ricerca Europea-APRE



The parallel workshop on Environment theme saw the participations of experts from different Caribbean (Belize, Cuba, Jamaica and Trinidad and Tobago) and Central American countries (Costa Rica, Guatemala and Nicaragua).

The wide range of expertise of the CAC actors involved in the debate allowed the identification of multidisciplinary potential research lines.

Communalities in research lines between Caribbean and Central America

The experts' contributions highlighted environmental priority issues which could represent the basis for the definition of research lines of common interest for Caribbean countries, Central America countries or either for the whole CAC region.

1. Land & water degradation in a climate change context

A research line should deal with the monitoring of land and water status, with particular emphasis on the effects of intensive agriculture under climate change conditions.

In particular, concerning chemical pollution, the behavior of specific contaminants (such as oil spills) and their impact on environment status and human health are actually unknown.

2. Natural & anthropogenic hazards

The discussion highlighted the need to set up and implement Early Warning Systems (EWS) with focus on the following major issues affecting the CAC region:

- Drought
- Chemical contamination of soils & waters
- Floods
- Landslides
- Earthquakes
- El Niño

The quantification of both environmental and economic impact (in terms of GDP) of such phenomena would be of interest for the CAC region.



3. *Marine resources*

Marine resources represent an important environmental and economic component for both Caribbean and Central American Countries. Oceanography expertise is needed and a long-term strategy for collecting data is missing.

The estimation of the impacts deriving from pressure factors like tourism and fisheries is of priority importance in terms of:

- Resilience of marine protected areas
- Economic loss of ecosystems

4. *Hotspots of biodiversity*

Forests ecosystems in CAC region represent hotspots of biodiversity. The importance for these hotspots should be enhanced in terms of added value, and ecosystem services and their role in carbon sequestration.

From the scientific point of view, the CAC experts stressed how future research activities should help to fill specific **knowledge gaps**, common to almost all countries present in the debate:

- Inventories and baseline data are often missing, with consequent difficulties in implementing monitoring systems
- Integrated planning prior to management interventions, with consequent problems of land degradation and unsustainable use of natural resources
- Set-up and implementation of model simulation tools to forecast environmental impacts is missing

Concerning the **transfer and the share of the scientific knowledge** within and outside the CAC research community the experts remarked the following issues:



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- Research results are often fragmented within CAC region, and the exchange of experiences and good practices between different research actors working in affine fields lacks
 - Local communities affected by environmental issues have scarce awareness of the problematic
 - The capacity building towards policy makers and the implementation of environmental policies often results weak and ineffective.

An effort was made by the participants during the discussion in order to priorities the scientific needs and to translate their research priorities into possible projects ideas to be integrated into the structure of the FP7 Environment Theme Work Program.

The most urgent common priority for both Central America and Caribbean researchers is the implementation of an *integrated watershed management approach* with a special focus on water resources. The integrated management of cross boarder watersheds should be also considered with particular attention.

The research activities should focus on:

- Resilience of agro-ecosystems to climate change, with particular reference to land and water degradation
- Identification of socio-economical factors determining degradation phenomena
- Land evaluation of the of areas interested by the research
- Development of modeling of pollutant and contamination behavior

The research line should explore the potential benefits of the introduction/enhancement of:



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- Conservationist low-impact agricultural practices
 - Cost efficient technologies for solid and liquid waste treatment

EU knowledge transfer and capacity building in the implementation of environmental technology applied in bioremediation of contaminated soils would be needed. One of the main outputs of the research should be the set-up of a user-friendly Decision Support System Tool (DSST) for land administrators involved in the decision-making process.

Specific Results for Central America

The specific research interest for Central America deals with *Biodiversity Hotspots, Forest Management, Soil conservation, Climate Change Adaptation and Risk Management due to Natural Hazards*. The main objective of these research lines is the enhancement of the added value of forest ecosystem in providing not only products (e.g. wood) but also services for the communities, as well as to prevent the occurrence of nature- induced disasters through the increase of knowledge of climate change, and its consequences for human activities. The research would deal also with the 2 following aspects:

- Awareness of the local communities: knowledge of their environmental perception and their involvement in biodiversity management through the conservation of traditional knowledge.
- Implementation of ecotourism models in protected areas through the direct management and involvement of the local communities.

Highlighting research lines of mutual interest with Europe

CA experts asked for collaboration with EU experts through the implementation of common projects on the identified priorities, with particular reference to technological innovation



(bioremediation system, earth observation, early warning systems and decision making support tools for risk reduction).

Concerning the European contribution, EU-CAC joint research collaboration would contribute to implement the approach of the Environment Theme Work Program which clearly indicates that most of environmental issues need to be addressed in a global dimension.

FOOD, AGRICULTURE, FISHERIES AND BIOTECHNOLOGY

BACKGROUND

The KBBE concept

KBBE stands for “Knowledge Based Bio Economy”. It covers issues related to Food, Agriculture and Fisheries, and Biotechnology.

The term “bio-economy” includes all industries and economic sectors that produce, manage and otherwise exploit biological resources (e.g. agriculture, food, forestry, fisheries and other bio-based industries) – for more information see: <http://www.bio-economy.net/> and http://ec.europa.eu/research/biosociety/index_en.htm

Objective of the KBBE theme

Building a European Knowledge Based Bio-Economy by bringing together science, industry and other stakeholders, to exploit new and emerging research opportunities that address social, environmental and economic challenges: the growing demand for safer, healthier, higher quality food and for sustainable use and production of renewable bio-resources, the increasing risk of epizootic and zoonotic diseases and food related disorders; threats to the sustainability and security of agricultural, aquaculture and fisheries production; and the increasing demand for high quality food, taking into account animal welfare and rural and coastal context and response to specific dietary needs of consumers.



KBBE Activities

European-funded KBBE research will focus on three pillars, called “Activities”, which each are divided into “areas”:

Activity 1: Sustainable production and management of biological resources from land, forest and aquatic environment

- Enabling research ;
- Increased sustainability of all production systems (agriculture, forestry, fisheries and aquaculture); plant health and crop protection;
- Optimized animal health, production and welfare across agriculture, fisheries and aquaculture;
- Socio-economic research and support to policies;

"The ocean of tomorrow" call - Joining research forces to meet challenges in ocean management.

Activity 2: Fork to farm: Food (including seafood), health and well being

- Consumers;
- Nutrition;
- Food processing;
- Food quality and safety;
- Environmental impacts and total food chain;
- European Research Area.

Activity 3: Life sciences, biotechnology and biochemistry for sustainable non-food products and processes

- Novel sources of biomass and bioproducts;
- Marine and fresh-water biotechnology (blue biotechnology);
- Industrial biotechnology: novel high added-value bio-products and bio-processes;
- Biorefinery;
- Environmental biotechnology;
- Emerging trends in biotechnology.

Activity 4: Other Activities

More information in: http://cordis.europa.eu/fp7/kbbe/home_en.html



KBBE and International Cooperation

International cooperation with participants from third countries is supported and encouraged throughout all the areas of the KBBE theme and all topics are open to cooperation with third countries.

Specific International cooperation Activities” or “SICAs” are identified, for which international cooperation is mandatory. Such activities aim to foster research both for and with developing countries, thereby contributing to achieving of the Millennium Development Goals (e.g. post-harvest losses, aquaculture for food security). Involvement of local stakeholders/users is an important aspect of these topics.

Co-operation with the BRIC countries (Brazil, Russia, India and China) is fostered via selected topics (SICAs and topics with mandatory ICPC participation) to tackle issues of mutual interest and benefit, identified through bilateral and regional dialogues.

Cooperation with industrialized countries in general focuses on emerging new scientific fields.

Cooperation with Latin America and the Caribbean: In 2010, EU-Latin America and Caribbean (LAC) Summit focused on bi-regional cooperation on "Innovation and technology for sustainable development and social inclusion". The Summit's Action Plan calls for boosting science and technology cooperation between the EU and LAC countries. In KBBE WP2011, a number of topics contribute to sustainability as advocated by the Summit and could, therefore, be of strong interest to LAC countries. In these topics, special attention was paid to environmental, economic and social dimensions and the uptake and use of the new knowledge generated.

Twinning of projects: With a view to promoting international cooperation with third countries that have signed bilateral S&T agreements with the European Union, initiatives for collaboration between projects under Theme 2 of FP7 and related research programmes in these third countries are encouraged on the basis of mutual benefit and reciprocity. The Commission reserves the right to ask the coordinators of FP7 projects, during the grant agreement negotiations, to include collaboration activities with projects financed by these third countries.



Other horizontal issues of the KBBE theme

When preparing proposals in the KBBE area, applicants should consider the following horizontal issues:

The innovation dimension

In line with the strong importance attached to developing an integrated approach to research and innovation in the Europe 2020 strategy, effective communication, dissemination, knowledge transfer and strengthening participation of industry, in particular SMEs, is key.

Special emphasis is placed on dissemination and take-up of research results at project level. Each proposal is asked to present well-defined dissemination and implementation plans, including, whenever appropriate, (i) appointing a "Communication manager"; (ii) setting aside dedicated budget for communication activities (iii) designing activities according to the needs of the different target groups; (iv) linking research results to 'Bulletin Board System' database; and (v) communicating the research results to the authorities managing the Cohesion Policy Funds.

Socio-economic dimension of research

Where relevant, account should be taken of possible socio-economic impacts of research, including its intended and unintended consequences and the inherent risks and opportunities. A sound understanding of this issue should be demonstrated at the level of both research design and research management. In this context, where appropriate, the projects should ensure engagement of relevant stakeholders (e.g. user groups, civil society organizations, policy-makers) as well as stimulate a multidisciplinary approach (including, where relevant, researchers from social sciences and humanities). Projects raising ethical or security concerns are also encouraged to be attentive to wider public outreach. The work programme encourages participation by civil society organizations in all topics.³

Participation by women and gender dimension in research

Seeking scientific knowledge and using it to serve society calls for talent, perspectives and insight that can only be secured by increasing diversity in science and the technological

³ KBBE concept Note prepared by Agenzia per la Promozione della Ricerca Europea-APRE



workforce. Therefore, equal representation of women and men at all levels in research projects is encouraged.

Gender aspects in research are of particular relevance to Theme 2. For example, there may be differences between men and women as regards risk factors, biological mechanisms, behavior, causes, consequences, management of and communication on diet-related diseases and disorders. Furthermore, roles and responsibilities, the relationship to the resource base (land management, agricultural and forest resources, etc.) and the perception of risks and benefits could have a gender dimension. Applicants should systematically address whether, and to what extent, gender aspects are relevant to the objectives and the methodology of projects. In addition, specific actions to promote gender equality in research can be financed as part of the proposal. For related publications, please consult the KBBE library, taking back publications, foresight studies, catalogues, and analyses related to the KBBE theme: http://cordis.europa.eu/fp7/kbbe/library_en.html

Project details are published on CORDIS after the negotiation and the signature of the grant agreement between the European Commission and the beneficiaries:

http://cordis.europa.eu/fetch?CALLER=FP7_KBBE_PROJ_EN

From this page you can access projects on Food, Agriculture and Fisheries, and Biotechnology funded under FP7 (Seventh Framework Programme). For FP6 funded projects, please consult: http://ec.europa.eu/research/biosociety/inco/projects_en.html

RESULTS OF THE DIALOGUE ON KNOWLEDGE BASE BIOECONOMY (KBBE)

CA Experts: Mercedes Pérez, Centro Nacional de Ciencia y Tecnología de Alimentos, Costa Rica; Freddy Sebastian Aleman Zeledon, National Agrarian University (UNA), Nicaragua; Ariel Abderraman Ortiz López, Universidad de San Carlos de Guatemala (USAC).

EU Experts: Nadine Zakhia-Rozis, Centre de coopération internationale en recherche agronomique pour le développement (CIRAD), France ; Antonio Logrieco, Consiglio Nazionale delle Ricerche (CNR) - Istituto di Scienze delle Produzioni Alimentari (ISPA), Italy.



Results of the discussions on KBBE theme for Central America (CA) and the Caribbean (CAR) by Eduardo J Trigo (EU rapporteur)

Introduction: setting the seen

The session took place in two parts. The first was directed to provide the context for the discussion of priorities for cooperation, while the second concentrated on the identification of possible concrete priorities.

During the first part a number of presentations were made by experts from the Central American and the Caribbean countries covering issues related to capacities in the region, as well as areas of potential interest for cooperation between the EU and the CAC region.

Regarding capacities, it is evident that most of the countries in both Central America and the Caribbean have substantial weaknesses that need to be addressed. But at the same time there are a number of centers in areas such as biotechnology, food technology and biodiversity valorization, which have relevant expertise, and could serve as relevant counterparts for regional cooperation efforts.

In relation to possible cooperation topics the biodiversity wealth of the CAC countries and how to sustainable exploit it for both food and energy, were a common issue behind all presentations. In this sense it was highlighted that bioenergy based alternatives offer a significant opportunity for diversifying the countries energy matrices – characterized, in all cases, by an over-dependency on oil, a resource which most countries are completely lacking. There are in the region a great biodiversity and biomass resources that offer important potential not only for biofuels development, but also as raw materials for small scales bio-refinery strategies, which could contribute to alleviate the dependency on non-renewable resources and also play important roles for rural development initiatives, through facilitating added value and other income diversification alternatives for the resource poor farmers.



Related to the above, but with a different perspective, other presentations highlighted the potential links between biodiversity and better food, both in terms of creating new functionalities and for the valorization of regional productions that today are not been fully exploited. The characterization of the nutritional and functional compounds of bio-diverse vegetable materials, and the use of different biotechnologies for improving the marketability of fruits and vegetables, were presented as areas with great potential, where there are also some important efforts underway, which could be profitably scaled-up through international cooperation.

Identification of priority topics for EU-CAC cooperation

The second segment of the workshop, included comments from European experts and a general discussion of the proposed topics, as well as some cross-cutting issues and institutional aspects potentially affecting future cooperation opportunities.

In general, there was convergence of points of view about the topics of importance for potential cooperation, reflecting, as was to be expected, the strengths and weaknesses of each region. The experts agreed that the greatest potential for future cooperation are mostly related to the exploitation of advances in the area of biotechnology for the better use of the CAC's region great biodiversity resources for production of better food and energy, and to meet the challenges posted by the impacts of climate change. In these areas – termed either in relation to the sustainable use of biodiversity resources in general or for particular food or energy products – there was agreement that the mutual interest and the potential value added is clear and present, and further refinement should follow.

Thematic priorities

Within the above general context the following specific topics were identified and discussed as potential topics of mutual interest.



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Research on biodiversity to “optimize ecological services”

The meeting emphasized that although biodiversity has very concrete applications – and they are discussed below under other headings – there is a need of a holistic approach taking biodiversity in its broadest sense, and also look at the role of biodiversity research in the optimization of the management of natural resources, emphasizing efforts to cover from their characterization to value adding for specific applications.

Use of microorganisms, for food and non-food use

The use of biotechnological tools for improving food and non food products and production processes was amply discussed, and there was agreement that cooperative work in different enabling technologies is a topic that should be given a high priority.

Food and food chain related issues

As indicated above, the link between biodiversity and food was discussed extensively as one of the areas of a greatest mutual potential interest. Within this general framework the following specific areas

- Development of functional foods for improved nutrition and health on the basis of existing biodiversity resources.
- Biotechnology applications for novel and/or improvement of traditional food processing techniques.
- Food quality and safety assurance (e.g. mycotoxins control on processed foods)
- Societal aspects of food, including the acceptance of novel food by the users and other consumers requirements

Optimization of the use of biomass for energy and industrial uses

The experts agreed that looking into biomass, as a generic resource for energy production – both large and small scale – was another area of mutual interest. Within this orientation the following specific topics were identified:

- Biofuels production from conventional and non-conventional sources, including novel regional biodiversity resources and agricultural and agro industrial waste, particularly from the sugar-cane industry.



- Sharing of the European experience with the biorefinery concept and its potential for rural development efforts.

Other issues

In the context of the discussion of above specific issues, other aspects were raised during the session which could eventually represent areas of mutual interest, and potential added valued through bi-regional cooperation. These include the following:

- Water resources management, including seawater resources, and specially related to the relative scarcity of land resources *vis a vis* water resources which is a particular characteristic of the region.–Fisheries: aquaculture and marine culture targeting non seafood production
- The possibility of exploiting the long experience and particular capacities that the CAC region has in the management of natural risks.

Cross cutting issues

Together with the above areas where research lines of mutual interest may, eventually, be identified, a number of cross cutting issues, some of which affect the capacity to cooperate were also singled out. These areas include:

Capacity building, including institutional and technical/financial aspects

The CAC region is very diverse, and although, as indicated above, there are some centers of excellence, the most common situation is the weaknesses of its research centers, which makes capacity building efforts a necessary strategy and high priority. In this sense however, it was acknowledged that FP7 instruments were not the most appropriate to address these objectives, as they do not contemplate instruments to this end. Bilateral or regional mechanisms linked to DEVCO should be explored to attend to these weaknesses.

Human resources, including the mobility of researchers:

Directly related to the above discussion on capacity building needs, the need to strengthen the human resources in the CAC region, including the setting up of an effective mechanism for the mobility of researchers, both within the CAC region and Europe, came up as another aspect that will have to be attended. The region has been making important progress in this area in recent times, but their national research systems are still in need of further



strengthening. In this sense it was recognized that People Programme within FP7 could offer a great opportunity, and both ENLACE and EUCARINET should consider special activities aimed at facilitating the CAC countries participation in relevant instruments and calls.

Weaknesses in the relationship between academy and SMEs/industry

Just as most of other regions in the developing world, the CAC countries have low levels of interaction between the academic and the industrial world, particularly at the level of the small and medium enterprise, where many of the basic capacities for interacting with local and international sources of new knowledge and technologies are lacking. The experts identified this as a major limitation for increasing the effectiveness of research efforts therefore, efforts within this area could be of great potential benefit.

Access to knowledge through regional models and databases

Given the small relative size of the economies of the CAC countries, the development of regional models – for example in the area of climate change where global models are difficult to interpret– and data bases or common access to all countries, represents an alternative that should be explored. This kind of resources could represent a very effective way of supporting national activities that today confront important limitations for their development.

Knowledge transfer from EU to third countries (CAC)

Although joint and collaborative research opportunities were the main focus of the discussion during the session, the issue of how to improve knowledge and technology transfer from the EU to the CAC countries also came up as a major aspect that can not be overlooked, particularly considering the leadership role that Europe plays in a number of scientific fields and technology areas. It was recognized, however, that – as was the case with capacity building – actions regarding these aspects should be explored within the context of DEVCO programs and instruments, as the FP7 is not an effective framework to address the issues involved.



HEALTH

BACKGROUND

The Context: Health and International Cooperation

In the field of Health, International cooperation is an integral part of the Theme and project consortia in all areas are encouraged to include organizations from third countries, especially from the International Cooperation Partner Countries (ICPC), and from countries with Scientific and Technological cooperation agreements with the EU according to the participation rules. Funding will be provided to participants from the ICP countries. Funding for organizations from other third countries may be provided on a case by case basis if considered essential for carrying out the project.

More specifically, international cooperation will be implemented via two mechanisms:

1. Opening of all activities of the Theme to international cooperation. Third country participation is particularly emphasized (enhanced international participation) in the areas addressing global health problems: Anti-microbial drug resistance, HIV/AIDS, malaria and tuberculosis, and emerging epidemics, as well as in certain individual topics in the other areas of the Theme, as indicated in the text.
2. Specific International Cooperation Actions in the areas identified through bi-regional dialogues in third countries/regions and international forums, on the basis of mutual interest and mutual benefit.

THEME 1: HEALTH

European-funded health research will focus on three pillars:

1. Biotechnology, generic tools and medical technologies for human health

- High-throughput research: enhancing data generation, standardization, acquisition & analysis.



- Detection, diagnosis and monitoring: with emphasis on non-invasive or minimally invasive approaches.
- Prediction of suitability, safety and efficacy of therapies: develop and validate parameters, tools, methods and standards (mainly through the Innovative Medicines Initiative - IMI) and alternatives to animal testing.
- Innovative therapeutic approaches and interventions: gene and cell therapy, regenerative medicine, immunotherapy and vaccines.

2. Translating research for human health

- Integration of biological data and processes: large-scale data gathering, systems biology.
- Research on the brain and related diseases, human development and ageing.
- Research on infectious diseases (antimicrobial drug resistance, HIV/AIDS, malaria and tuberculosis, emerging epidemics, neglected infectious diseases).
- Research on major diseases: cancer, cardiovascular disease, diabetes/obesity, rare diseases, other chronic diseases including rheumatoid diseases, arthritis and musculoskeletal diseases.

3. Optimizing the delivery of healthcare to European citizens

- Translation of clinical outcome into clinical practice: patient safety, better use of medicines, benchmarking, pharmacovigilance.
- Quality, efficiency and solidarity of health care systems.
- Enhanced health promotion and disease prevention.

When preparing proposals in the Health area, applicants should consider the following horizontal issues:

The Health Theme builds on the experience acquired from the activities undertaken in the previous Programmes, thus ensuring continuity, while taking into account major global health problems and recent advances in biomedical and health sciences. The aim of this Theme is to advance the understanding on how to promote good health more efficiently, to prevent and treat major diseases and to deliver health care. It will help integrate the vast amount of genomics data to generate new knowledge and applications in medicine and biotechnology. It will foster translational health research, which is essential to ensure practical benefits from biomedical research.



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Child health

Support will be given in particular to specific clinical studies to provide evidence for the appropriate use of off-patent products currently used off label in pediatric populations. In addition, specific topics will address the following research issues related to child health and pediatric diseases: Pediatric formulations of drugs against HIV/AIDS, malaria and tuberculosis, combined forms of diabetes in children, Promoting healthy behavior in children and adolescents, and Improvement of vaccination coverage. Implications for child health and pediatric diseases should be taken into account whenever appropriate in all research projects in this Theme.

Health of the ageing population

A special emphasis will be made also on research on the health of the ageing population. The following research issues will be addressed by specific topics, in particular: Novel approaches to reconstitute normal immune function at old age; Biomarkers of ageing; Increasing the participation of elderly in clinical trials; Understanding and combating age-related muscle weakness; Osteoarthritis; Impairment of touch and proprioception at old age; Health systems and long term care of the elderly; Health outcome measures in an ageing population; and Trends of population health.

Whenever appropriate, the projects funded under this Theme should take into consideration the research aspects related to prevention, diagnostics and treatment of age-related diseases and the impact on quality of life of older people.

Gender aspects in research

Gender aspects in research have a particular relevance to this Theme as risk factors, biological mechanisms, causes, clinical manifestation, consequences and treatment of disease and disorders often differ between men and women. The possibility of gender/sex differences must therefore be considered in all areas of health research where appropriate.



General Objectives

The objective of health research under FP7 is to improve the health of European citizens and boost the competitiveness of health-related industries and businesses, while addressing global health issues such as anti-microbial resistance, HIV/AIDS, malaria, tuberculosis and emerging pandemics.

Emphasis will be put on translational research (translation of basic discoveries into clinical applications including scientific validation of experimental results), ensuring that biomedical research provides practical benefits and improves life quality; the development and validation of new therapies, methods for health promotion and prevention including promotion of healthy ageing, diagnostic tools and medical technologies, as well as sustainable and efficient healthcare systems.⁴

Why is it important?

- Promoting good health
- Preventing and treating major diseases
- Delivering health care
- Increasing the competitiveness of health care biotechnology and Medical technology sectors where SMEs are main actors
- Developing norms and standards for advanced therapies
- Enhancing international efforts to combat global health problems
- Researching rare diseases

Work Programmes from the previous calls containing the research lines which were already open for funding: http://cordis.europa.eu/fp7/health/library_en.html

HEALTH COMPETENCE PORTAL where ALL projects funded by the HEALTH theme are displayed with information on the research areas and the countries involved:

www.healthcompetence.eu

⁴ Health concept Note prepared by Agenzia per la Promozione della Ricerca Europea-APRE



HEALTH LIBRARY ON CORDIS: http://cordis.europa.eu/fp7/health/library_en.html

OTHER RELEVANT INITIATIVES: ALCUEH, Health Collaboration Program among Latin American, the Caribbean and European countries: <http://www.alcueh.org>

RESULTS OF THE DIALOGUE ON HEALTH

CA Experts: José Félix Espinoza, Universidad Nacional Autónoma de Nicaragua – León; José María Gutiérrez, Universidad de Costa Rica; Oriana Batista, Universidad Autónoma de Chiriquí, Panamá.

EU Experts: Vincent Lacoste, Institut Pasteur Cayenne, French Guyana ; Francesca Incardona, Informa srl, Italy.

Results of the discussions on Health theme for Central America (CA) and the Caribbean (CAR) by Ben Berkhout (EU rapporteur)

Up front, an important restriction concerning the status of this report should be stated. It reflects the opinions of those individuals that were invited, but the coverage may not be complete and important research themes may have been missed. Thus, no definitive list of research topics is presented below, and we also did not discuss the ranking order in terms of priority. The way to go forward seems to get input from other experts, research bodies, governments, etc., on this pilot listing of candidate Health research themes.

1. Infectious diseases

HIV-tuberculosis (TB)-malaria, the big three were frequently mentioned, but it is important to realize that the health relevance varies considerably per region. For instance, HIV-1 infection (1% individuals infected) is a general problem, but TB (except co-infections with HIV-1) and malaria is much less of a health problem for CAR, yet malaria is a serious health threat for CA. There is strong social dimension to this problem, see e.g. health inequalities for minority populations (project 3). Any future actions should complement the ongoing programs, e.g. EU-sponsored activities in Africa. HIV-TB-malaria actions, but it is important to emphasize that the biology is not identical in different parts of the world: we find other HIV-1 subtypes in CAR and CA versus Africa and Europe, and both the malaria parasite and the insect vector are different in America versus Africa.



Justification by José María Gutiérrez: Although the epidemiological profile of CA has changed in the last decades and degenerative/chronic diseases now occupy a prominent position, infectious diseases continue to be a serious problem, especially in impoverished regions of CA, affected by natural disasters, malnutrition and poor housing and education. In this context, diarrhoeas and respiratory illness take a heavy toll. The particular aspects associated with infectious diseases in the region need to be investigated in order to identify their specific features and to find solutions to these problems.

Justification for EU interest by Francesca Incardona: the different biology of the viruses between Europe and CA and CAR highlighted above (for instance different viral type or subtype population), might help Europe to better understand situations that have a minor frequency in Europe but that are more common or predominant in CA and/or CAR countries (like subtypes J and F of HIV1).

EU relevance: Health; 2.3.Translational research in major infectious diseases: to confront major threats to public health; 2.3.1 Anti-microbial drug resistance - 2.3.2 HIV/AIDS, malaria and tuberculosis (Francesca Incardona).

Neglected infectious diseases other than HIV-TB-malaria form another major health problem that was already analyzed in much detail for Latin America and the Caribbean in a thematic workshop, for which the results were published (PLoS Neglected Tropical Diseases October 2010, vol. 4, e780). The topics were prioritized not just based on the burden of disease, but rather on the research perspective for future improvements.

Arthropod vector-borne diseases (e.g. Leishmaniasis): poverty-related, linked to environmental changes (overlap environment), affordable diagnostics, innovation drug development, epidemiological surveillance, therapeutic strategies for chronic carriers, vector control tools based on strong expertise in medical entomology, basic vector biology studies essential (which vectors are implicated in a specific disease!).



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Soil-transmitted helminths (e.g. Hookworm): can be reduced with exciting tools, but research on drug resistance, chronic infection and impact on other diseases and vaccination efficiency.

Endemic mycosis caused by several (fungal) pathogens (e.g. Candidiasis), diagnosis, epidemiology (determinants of infection), new drugs, interaction with other pathologies.

Viral diseases (non-anthropod borne): new and re-emerging viral diseases (Mexicanflu, Hispanola polio recombinant), zoonoses, HTLV-I, Hantavirus.

Sexually transmitted diseases (STDs) other than HIV-AIDS (Chlamydiasis, HPV): Early diagnosis, treatment and drug resistance.

Justification by José María Gutierrez: The Neglected Tropical Diseases constitute a group of ailments of high relevance in CA. These diseases, which include a number of parasitic and infectious entities, have the peculiarity of affecting the poorest people of the region. Since the social inequities in CA have grown over the last decades, due to the dominant political projects which do not prioritize large investments in social issues, such as health, a growing proportion of the population in CA I lives in poverty. In this context, neglected tropical diseases affect poor people who are often excluded from the provision of health services. The incidence of these diseases, together with their diagnosis and clinical manifestations, the implementation of preventive and therapeutic approaches, and the analysis of accessibility of populations to health services (diagnostics, treatment and prevention) are issues that demand urgent research efforts in CA.

EU relevance: Global health, emerging epidemics, neglected diseases, tourism with improved safety.



2. Chronic and degenerative diseases (Cardiovascular, hypertension, stroke, diabetes, cancer)

These diseases were proposed by multiple groups during the dialogue at the Santo Domingo, due to the high (and increasing) prevalence. A major aim would be a detailed epidemiological survey to search for predictive factors and risk factors which eventually should lead to preventive measures, but associated research could also address mechanistic biological issues and health economics. Several groups reported links with regional and international registries and previous research support from abroad, e.g. Wellcome Trust. The building of a multi-national consortium should be considered to gain regional momentum. This should start with a few experienced laboratories and subsequently roll out to other countries in the region.

Justification by Anselm J.M. Hennis, University of the West Indies (UWI), Barbados: Chronic and degenerative diseases are now the major cause of ill health in the developing world, with diseases such as type 2 diabetes set to disproportionately affect populations of CA and CAR. While rates of cardiovascular disease are decreasing in many European countries, they are rising in CAR and CA. The importance of the impact of these diseases has been recognized by the CAR Heads of Government who will be leading a UN High Level Meeting to tackle chronic non-communicable diseases (CNCDs) later this year. CNCDs are diseases of development and not only adversely affect national development but in turn the global economy. Any European developmental strategies must therefore include specific aims to reduce the burden of chronic and degenerative disease. CNCDs are common cross-cutting issues throughout CAR and CA as the major cause of ill health and death. These observations are also relevant to minority European populations which share common heredity. The CAR and areas of CA provide unique opportunities to study and develop clinical and public health policies for CNCDs which have implications for not only the region, but most of the developing world. This approach is also in line with the EU approaches to ageing, gender and translational research.

EU relevance: New insights gained for the CA/CAR population are of direct relevance for minority populations within the EU. Other issues: ageing, translational research, gender.



3. Health inequality

The Health Inequality of minority populations was exemplified for Haitian immigrant workers in sugar cane plantations in the Dominican Republic (the so-called Bateyes populations). Severe health issues were reported, including frequent parasitic diseases (link to project 1), diarrhea (only 30% vaccination rate in children) and e.g. 5% HIV-positivity. Very similar (immigrant) problems were reported for other CA/CAR countries, such that a consortium action could be considered. The idea was to study the impact of community intervention programs by means of visits of trained community workers to the households to raise HIV awareness, the success of pediatric immunization campaigns etc. A robust research plan should be designed that focuses on ethical issues, solid statistics and definition of an appropriate control group.

Justification by José María Gutierrez: Latin America is considered the region showing the highest inequity in the distribution of wealth and in the provision of social services. A large percentage of the population in LA lives under the poverty line. The incidence of some diseases and the provision of health services constitute two key areas in which these inequities become more evident. When the health indexes in CA are described in general terms in each country, such inequities are overlooked. However, when specific social and ethnic groups, as well as women and children, and immigrant populations are analyzed separately, these inequities become clearly evident. The study of such inequities in the incidence of diseases and in the provision of health services represents a highly relevant subject that will provide valuable information for decision makers and other groups of people. The implementation of health intervention programs aimed at reducing such inequities greatly depend on research on this area of public health in LA.

Justification for EU interest by Francesca Incardona: research on health systems should provide comparative basis for informed policy decision on health. Studies on countries with extreme situation, even very different from those present in Europe, can constitute a useful benchmarking.



EU relevance: No direct relevance, but the EU has funded similar community intervention studies in the past, mostly in Africa.

The Health programme has its 3rd part on OPTIMISING THE DELIVERY OF HEALTHCARE TO EUROPEAN CITIZENS which includes or can include also specific international cooperation actions and themes like 3.2 QUALITY, EFFICIENCY AND SOLIDARITY OF HEALTHCARE SYSTEMS and 3.4 INTERNATIONAL PUBLIC HEALTH & HEALTH SYSTEMS (Francesca Incardona).

4. Communicable diseases linked to natural disasters

This seems a timely topic in the aftermath of the Japanese earthquake-tsunami. The project was introduced in relation to the increased incidence of tropical cyclones and hurricanes in CA and CAR. The increase in frequency of these weather-related disasters should be validated as they may possibly relate to climate change, which gives this project a global perspective. Emergency environmental health programs are needed to assess the impact on communicable diseases: Leptospira, dengue, cholera (link to project 1), but the program can easily be broadened to include injuries, social impact and stress, impact on food supply and related psychological issues. Poverty does likely increase the vulnerability in CAR and CA, creating a specific need.

Justification by José María Gutiérrez: Natural disasters have greatly affected CA in the last years. Such phenomena have implications in many aspects of life, among them in health. Owing to the social inequities and poverty that characterize many regions in CA, the impact of natural disasters in health are dramatic, particularly concerning infectious diseases. Some of the consequences of natural disasters, such as lack of potable water, damage to power supply, damage to health infrastructure, etc., exert a high impact in the incidence of infectious diseases. Understanding the relationships between the impacts of natural disasters, increments in infectious diseases, provision of health services and other factors need to be approached through collaborative research programs.



EU relevance: Broader than Health theme: Environment, climate change. Global initiative may be required, in which a CAR/CA consortium participates.

5. Diagnosis of genetic diseases

Diagnosis of genetic was introduced as a major health problem in clinical CA/CAR settings. Strengthening the capacity for diagnosis of genetic diseases with molecular methods would seem very important given the predictive value for therapy, carrier status, and prenatal newborn screening. Of course this project should constitute more than just a technology transfer plus the training of professionals. A research theme should be developed based on this infrastructural machine boost, e.g. discovery of novel disease-causing gene mutations. There could be SME involvement.

Comment by Francesca Incardona: While probably genetic diseases are not among the most relevant in CA and CAR countries, the development of centers for genetic analysis based on molecular methods can greatly support treatment of many different diseases, from cancer to HIV. Anyway this seems more a technology transfer than a research oriented issue.

EU relevance: No direct relevance, some link to themes like lack of standardization of diagnostics, disease definition, EU rare diseases initiative.

Conclusion:

It seems that AREA 1, 2 and 4 may constitute research lines that are of mutual interest for CA/CAR and Europe, although it is necessary to go deeper in the justification explaining why these research lines should be addressed at an international level, searching for an inclusion into Framework Programme 7 for Research and Technological development. Given that all countries in CA and CAR are comparatively small in terms of population, it would be a great advance if they would join their efforts in particular for what pertains to data collection. It is advisable to push countries with a top down approach towards regional agreements for data collection.



GENERAL CONCLUSIONS

Regarding the **Environment** dialogue and as outlined by the Central American experts, the issues of primary concern to the region are: the **integrated watershed management**, and the **use and degradation of land and water**. Also **natural and anthropogenic hazards** were placed as major challenges for Central American countries. Something important is that all these issues can be framed within the context of adaptation to climate change, which is a main priority of Theme 6 of the FP7 cooperation programme. The experts also stressed out the need of technology and knowledge transfer, between Europe and Central America, but also within the region.

As the world population continues increasing, the issue of **exploitation of biological resources** is a challenge that needs to be tackled; the need of producing more and better products will continue growing in the upcoming years, having as a background the Climate Change. All the experts have been unanimous in highlighting the priority lines that demand international collaboration in the fields of **food, agriculture and fisheries, and biotechnology**. During the dialogue, the emphasis was on: **Research on biodiversity to optimize ecological services, Use of microorganisms for food and non-food use, Food and food chain related issues and Optimization of the use of biomass for energy and industrial uses**. Those fields of research are of utmost priority in Central America being highly dependant in the local capacity building and strengthening of local research structures.

Concerning to Health Theme, the priorities stated are: **Infectious diseases, Chronic and degenerative diseases and Communicable diseases linked to natural disasters**. Although the diagnosis of genetic diseases was presented as a major health problem in Central America, it is not a relevant area for Europe; therefore in this case, the European Experts recommended that this subject would be more a technology transfer than a research oriented issue.

It is evident that the 3 themes discussed in the Dialogue fit perfectly in the priorities of the three geographical regions, therefore, the Cooperation Programme of the FP7 represent a great opportunity for Europe, Central America and the Caribbean, to join efforts and to share experience, knowledge and talent to solve mutual problems and improve the quality of life of people in a sustainable way.



RECOMMENDATIONS

In the following bi-regional dialogues it would be interesting to bring all the experts together in a session, to discuss the 3 themes considering that as seen in the dialogue, are linked in many aspects, specially concerning to Climate Change and the occurrence of natural disasters due to extreme weather conditions.

It was stated by all the Central American experts the need of local capacity building, the FP7 and the ENLACE project could be a tool that may help to create awareness in the authorities and governments, that allow them to understand the relevance of scientific research, and how investing locally in capacity building the CA countries can improve their capabilities, to compete at higher and global levels developing research, and improving the development of the countries.

This document can be enriched with inputs from future dialogues at local level in each country or region, by bringing together different experts in meetings, which could support the development of a stronger and more concrete proposal for the European Commission. The main goal for Central America regarding these dialogues will be to be included in at least one specific call of the FP7.

It will be desirable for the next dialogues, to include researchers from the industrial and private sector of Central America. It is necessary to encourage more participation of private sector in the strengthening of research structures at a national level in each country.

Given the conditions of the Central American region, all the experts agreed that more effort in knowledge and technology transfer must be put. This can be made regionally but also intra regionally (intertwining CA and the Caribbean). Therefore, more collaboration is needed between Central American countries to supply basic needs (some Central American countries already have solved), for example the generation of basic data, which was a major concern highlighted by the experts.



ANNEX

AGENDA OF THE EVENT

**“Thematic priority setting for EU, Caribbean & Central America in
research and innovation”**

7th – 8th of March, 2011

Dominican Republic, Universidad Iberoamericana (UNIBE)

Ave. Francia 129, Gazcue, Santo Domingo

Priorities Dialogue Workshop

7th March 2011 – Plenary Morning Session

09.00 - 9.30 Registration of the participants

09.30 **Welcome Speech**

Ligia Amada Melo de Cardona, Ministry of High Education Science and Technology for Dominican Republic (MEESCYT)

Diassina Di Maggio, Director of Agency for the Promotion of European Research (APRE) , Coordinator of EUCARINET & ENLACE EU Projects

Epaminondas Christofilopoulos, INCO National Contact Point, Foundation for Research and Technology Hellas (FORTH)

10.00 **Moderator:** (UNIBE)

10.45 **The International Dimension of the European Research Framework Programme : Relevance of Networking Activities**



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Isi Saragossi, Director, European Commission, DG-Research & Innovation, International Cooperation **TBC**

Basile Papadopoulos, Head of Unit, European Commission, DG Development and Cooperation, EuropeAid

11.15 International Cooperation Actions with Caribbean and Central America

Tarik Meziani, Policy Officer, European Commission, DG-Research & Innovation, International Cooperation

COFFEE BREAK

11.45 International Cooperation within the specific thematic areas in FP7:

Knowledge-Based Bio-Economy (KBBE)

(video conference) Elisabetta Balzi, Policy Officer, European Commission, DG-Research & Innovation, Biotechnologies, Agriculture, Food **TBC**

Health

Indridi Benediktsson, Policy Officer, European Commission, DG-Research & Innovation, Health **TBC**

Environment

Nikolaos Christoforides, Head of Unit, European Commission, DG-Research & Innovation, Climate change and natural hazards **TBC**

12.45

Open debate

13.30 End of the morning session



7th March 2011 – Afternoon Session (only invited participants)

14.30 Priorities Experts Dialogue Workshop – Identifying research lines of mutual interest

3 Parallel sessions

- **Knowledge-Based Bio-Economy (KBBE)**
- **Health**
- **Environment**

Knowledge-Based Bio-Economy (KBBE)

This Parallel thematic workshop will include the presence of:

- **8 experts** – 3 representing the Caribbean, 3 Central America, 2 European Experts
- 1 EC officer
- 1 National Contact Point
- **1 Rapporteur**

A total of **11 participants** per workshop will be selected

Health

This Parallel thematic workshop will include the presence of:

- **8 experts** – 3 representing the Caribbean, 3 Central America, 2 European experts
- 1 EC officer
- 1 National Contact Point
- **1 Rapporteur**

A total of **11 participants** per workshop will be selected

Environment

This Parallel thematic workshop will include the presence of:

- **8 experts** – 3 representing the Caribbean, 3 Central America, 2 European experts
- 1 EC officer
- 1 National Contact Point
- **1 Rapporteur**

A total of **11 participants** per workshop will be selected



COFFEE BREAK

18.30 End of the afternoon session

8th March 2011 – Plenary Morning Session

09.00 - 9.30 Registration of the participants

09.00 Welcome from the Host Organisations UNIBE
Moderator: tbc

09.15 Conclusions and recommendations from the Expert thematic dialogue workshops: *Research lines of mutual interest for future cooperation actions*

- *Rapporteur from the KBBE workshop*
- *Rapporteur from the Health workshop*
- *Rapporteur from the Environment workshop*

10.30 Open discussion

11.00 End of the morning session



EXPERTS' CVS DIVIDED BY THEME

ENVIRONMENT

Elizabeth Carazo - Costa Rica

Elizabeth Carazo graduated in Agricultural Engineering in 1975 in the University of Costa Rica. She studied a master in the Nuclear Energy Centre in Agriculture (CENA), Universidad de Sao Paulo, Brasil, called "Mestre em Energia Nuclear na Agricultura". She specialized at the time in "Agricultural Environment Pollution" and in "Plant Proteins". Between 1986 and 1991 she had a PHD in the Department of Entomology at the University of Maryland in the United States. In 1980, she received a fellowship in Cairo to work on nuclear energy at the Middle Eastern Radioisotope Center for the Arab Countries, where she studied "Use of Nuclear Techniques in the study of Pollution of the Agricultural Environment". The same year, she was awarded the premium "Honor e Louvor" in Sao Paulo.

She has a long experience in teaching as she taught for example "Training in Agricultural Pest Control", at the Department of Agriculture's National Training Institute (INA); or the "FAO/IAEA Regional Training Course on Isotopes Techniques in Pesticide Research" in San José, Costa Rica. Since 1992 she is both a member of the postgraduate in Agricultural Sciences and Natural Resources, and a professor of Invertebrate Pest Management of the postgraduate programme in the field of the protection of crops at the University of Costa Rica. Since 1980 she has also taught Economic Entomology and General Entomology General in the same university.

Today, she is the Director of the Research Centre on Environmental Pollution of the University of Costa Rica. She is also a member of the chemical committee of the protection of crops International Union of Pure and Applied Chemistry IUPAC. She regularly takes part in international events and has published several papers, one of them being: Felsot, A., Unsworth, J., Linders, J., Roberts, D., Harris, C., Carazo, E. 2010. Agrochemical spray drift; assessment and mitigation. Journal of Environmental Science and Health, Part B. Pesticides, Food Contaminants and Agricultural Wastes. 45: 1-61.



Eddi Alejandro Vanegas Chacón - Guatemala

Eddi Alejandro Vanegas Chacón graduated as an Engineer of Agricultural Science in the University of San Carlos, Guatemala. His Research area was Production of Agricultural Systems. From 1992 to 1994, he went to the Agricultural University of Wageningen, The Netherlands to graduate as a Magister of Science. He specialized in Soil and Water management. From 2002 to 2006, he became a Doctor of Science in the Federal University of Vicosa, Minas Gerais, Brazil. His Research area was soil and plant nutrition.

He has a teaching experience at Higher education systems. He was Professor for 21 years with experiences in teaching, research and communication activities in the areas of: agriculture, water resources, conservation and management of soils, agro forestry systems, and environmental management. He worked for grade and postgraduate higher education programs at San Carlos, Landivar and Rural Universities in Guatemala. At San Carlos University, he worked between 1991 and 1994 as a Titular Professor in the Faculty of Agronomy. He coordinated various programmes and departments, as the Postgraduate Program of Environmental Management, the Unit of Academic Scheduling, in Faculty of Agronomy, the Soil and Water Management Department in the Faculty of Agronomy and the Agricultural Engineering Department in the Faculty of Agronomy.

As for his experience with international cooperation, he was Coordinator and professor of the Environmental Management Project for Local Development The Netherlands – Guatemala, Faculty of agronomy between 2007 and 2008. In 2001, he was a Professor Exchange Program, Canada, University of Waterloo - Faculty of Agronomy. Between 1994 and 1996, he also was the National Coordinator of the Soil Drainage Program, The Netherlands- ILRI- Guatemala-MAGA-Faculty of Agronomy.

He wrote several articles in the environmental research area, for instance Carbon fixation by Eucalyptus plantations in Siquinalá, Escuintla, Guatemala. Tikalia.Vol. XXXVII. No. 2-2009. Page. 7-18. He participated in several research projects as FODECYT 015-2008; Soil forest quality for native trees in coast areas of Guatemala; 2008-2011, National Secretary of Science and Technology, or Trees of the semi-arid region of Guatemala, Motagua River, 2007. Finally, he has attended to some international courses of specialization for example Organic agriculture, as an alternative for an environmental production and Green matures and sustainable soil management in Brazil.



Matilde Somarriba Chang - Nicaragua

Matilde Somarriba Chang graduated a B Sc. in Agronomy in College of Agricultural Sciences, National Autonomous University of Nicaragua (UNAN-Managua) and a Master of Science in the Department of Ecosystem Science and Management, Texas A&M University, College Station in Texas, in the United States. She went to Wisconsin to attend Graduate courses on Wildlife Recreation and Nature Tourism (WRNT). She has recently achieved a PHD in Philosophy in Landscape Planning at the College of Natural Resources and Agriculture Sciences, Urban and Rural Development Department at the Swedish University of Agricultural Science (SLU), Uppsala in Sweden.

Between 2002 and 2010 she worked as a Professor Titular at the College of Natural Resources and Environment (FARENA), National Agrarian University (UNA), teaching the following courses: Watershed planning and management; Soil and Water Conservation; Environmental Impact Assessment and Protected Areas Management. Since 2010, she has been the Vice dean of this same college in Nicaragua.

Currently, she carries out several studies, like the Environmental impacts of tourism activities in protected areas, Natural Reserves Mombacho Volcano and Datanlí-El Diablo, Nicaragua; she is responsible for two components in the projects "Between Telica and El Casitas: From vulnerability to sustainability" Jointly with the NGO Association for Rural Cooperation in Africa and Latin America (ACRA) and funded by the European Union. Since 2001, she has also been a member of Steering Committee of the National Network of Watershed Organizations (RENOC), Nicaragua.

In 2010 she published an article, "Testing Ecotourism Principles in Nicaragua, The cases of the Nature Reserves Mombacho Volcano and Datanli-El Diablo". Doctoral Thesis 2010: Faculty of Natural Resources and Agricultural Sciences, Swedish University of Agricultural Sciences, Uppsala, Sweden.

Finally, she has worked in the area of inter-institutional coordination, for example between 2002 and 2007 at the Integrated Soil Management Consortium (MIS) or at the International Union of Soil Sciences between 2006 and 2008.



FOOD, AGRICULTURE, FISHERIES AND BIOTECHNOLOGY

Ana Mercedes Pérez Carvajal – Costa Rica

Ana Mercedes Pérez Carvajal graduated in Tecnología de Alimentos in the University of Costa Rica in 1987. Lately she obtained an specialization in Food Science, in the Université des Sciences et Techniques du Languedoc (USTL), Montpellier, France. During the same year, i.e. in 1989, she had a master degree in Food Technolgy for Tropical Countries in the École Nationale Supérieure des Industries Agro-alimentaires (ENSIA/SIARC). She had her PhD three years later in USTL in Biochemistry and specialized again in Food Science.

Between 2010 and 2011 she has worked as a researcher at the Centro Nacional de Ciencia y Tecnología de Alimentos (CITA) of the Universidad of Costa Rica (UCR). She has a long experience regarding the coordination of projects. For example, she coordinated the “Producing added value from under-utilised tropical fruit crops with high commercial potential” project under FP6, the “Generación de conocimiento científico y tecnológico sobre la biodiversidad de moras (*Rubus spp*) criollas costarricenses como alimento con alto potencial antioxidante” project or the project “Producción de hojuelas crujientes de frutas mediante el acoplamiento de deshidratación osmótica y fritura” funded by incentives from the Science and Technology Ministry (MICIT) / CONICIT.

Since 2001, she coordinates the cooperation programme with the french institute CIRAD-PERSYST (“Centre de Coopération Internationale en Recherche Agronomique pour le Développement”). Since 2002, she has also been a member of the Coordination Comission of Research Process of CITA.

She wrote several publications like GANCEL A.-L., FENEUIL A., ACOSTA O., PÉREZ A. M., VAILLANT F. 2010. Impact of industrial processing and storage on major polyphenols and the antioxidant capacity of tropical highland blackberry (*Rubus adenotrichus*). Food Research International, in press, doi:10.1016/j.foodres.2010.06.013; or WONG E., VAILLANT F., PÉREZ A. 2010. Osmosonication of Blackberry Juice: Impact on Selected Pathogens, Spoilage Microorganisms and Main Quality Parameters. Journal of Food Science, In press. doi: 10.1111/j.1750-3841.2010.01730.x. She also participated in many conferences and symposiums as COZZANO, S., ACOSTA-MONTOYA, O., PÉREZ-CARVAJAL, A.M., VÍQUEZ, F., CASTRO, M.V., VAILLANT, F. 2007. Influence of ripeness on physical, chemical and antioxidant properties of blackberries (*Rubus adenotrichus* Schltdl.), cultivated in Costa Rica,



POSTER. 2nd International Symposium on Human Health Effects and Fruits and Vegetables FAV Health, Texas A&M University, 9-13 octubre, Houston, Texas for example.

Freddy Sebastian Alemán Zeledón - Nicaragua

Freddy Sebastian Aleman Zeledon had a master degree of Science (MSc) at the Swedish University of Agricultural Sciences, and was specialized in Weed Science. In 1998, he went to Cornell University, College of Agriculture and Life Science, Fruit and Vegetables Science Department) Ithaca, in New York to attend to some classes. In 2000 he had his PhD in the Swedish University of Agricultural Sciences. His principal subject is Agriculture, Research management / weed management.

He served as Research Professor of National Agrarian University in Managua, Nicaragua between 1994 and 2000 and as vice dean of Agronomy faculty between 1991 and 1993. Since 2001, he has worked as director of research, extension, and graduate studies at National Agrarian University and as agronomist.

He also published some articles, Aleman, F. 2010. Contribución de las Universidades publicas a la producción científica en Nicaragua. Memoria del Congreso Calidad e Impacto de la Revista Iberoamericana CIRI. Fondo de Cultura Económica. México DF; Alemán, F; H. Medrano; A. Norgren, A. Reyes. S. Sheinberg. 2010. Innovaciones en las Universidades Nicaragüenses: Casos exitosos. Consejo Nacional de Universidades (In Press); or Aleman, F; H. Medrano; A. Norgren, A. Reyes. S. Sheinberg. 2010. La Universidad Emprendedora en Nicaragua, Consejo Nacional de Universidades (In Press) for example.

Ariel Abderraman Ortiz López - Guatemala

Ariel Abderraman Ortiz López was born in Santa Cruz del Quiché in 1957. He graduated as an agronomist in 1983 in the agronomy department in the University of San Carlos of Guatemala in Guatemala. He then went to the University of Iowa, in the United States to follow a Master of Science in Agricultural Economics in the Iowa State University. He finally had his PhD in Applied Economics in the Escola Superior de Agricultura “Luiz de Queiroz”, Universidad de Sao Paulo, Piracicaba, Sao Paulo in Brazil.

Between 1982 and 1984 he worked at the Agricultural Science and Technology Institute –ICTA as assistant researcher. Then, he worked between 1998 and 2000 at the Ministry of Agriculture, Livestock and Food, in the Policy and Strategic Information Unit as an Environmental Policy Specialist.

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Since 1984 he has worked at Facultad de Agronomía in the Universidad de San Carlos de Guatemala. Between 2003-2007 he worked as Faculty Dean. He also was Director of the Agronomic Research Institute. He has also taught the courses of: General Economics, Agricultural Economics, Economics of Natural Resources, Marketing of Agricultural Products, Management of Agricultural Production Systems, and, Project Preparation and Evaluation. He is a full professor. He finally worked as Researcher in the projects: (i) Description of peasants production systems in the Achiguate river basin, CIID-FAUSAC, 1986/88; (ii) Watersheds identification for academic research, FAUSAC, 1989/90; (iii) Impact of agricultural production systems on Guatemala semiarid region biodiversity, WWF-FAUSAC, 1992; (iv) Basic data for natural resources use planning in Itzapa river micro basin, FAUSAC-DIGI, 1992-93 and 1999; (v) Description of mamey production chain (*Pouteria sapota*) emphasizing industrial uses, FAUSAC-DIGI, 2000; y, (vi) Market study for mamey products (*Pouteria sapota*), FAUSAC-PROFRUTA-AGROCYT, 2004-2005.

He made several consultancies for the Food and Agriculture Organization of de United Nations –FAO. “Project formulation: recuperación de medios de vida de pequeños agricultores afectados por la tormenta tropical Agatha en Suchitepéquez y Retalhuleu” in 2010 or “Misión de evaluación de cosechas y disponibilidad de alimentos en Guatemala” in 2009. He was also a consultant for Dirección General de Investigación -DIGI-, Universidad de San Carlos de Guatemala, the World Bank and Instituto Nacional de Bosques –INAB-, among others.

He wrote several articles, the most recent one being: ORTIZ LÓPEZ, A.; GUICOY TOMÁS, J.; QUELEX TUBAC, C.; and, GRAMAJO, F. Market study for mamey products (*Pouteria sapota*). SENACYT, MAGA-PROFRUTA, AGROCYT, FAUSAC, Guatemala 2006. Last but not least, he received many awards, as the Accomplishment plate “for duties performed as full university of San Carlos” by the Private university education board in October 2008 or the Medal “Academic Excellence Annual Prize for university professors” granted by the Universidad de San Carlos de Guatemala in June 2008.



HEALTH

Oriana Batista – Panama

Oriana Batista was born in 1967 in Panama. She works at the Universidad Autónoma de Chiriquí (UNACHI). She graduated as a Ph.D. in Human Molecular Genetics and Biomedicine in Germany and had a postdoctoral training in Clinical Molecular Genetics in United States. She made her doctorate between 1997 and 2001 on Isolation and characterization of a retinoic-acid sensitive developmental gene using an induction gene trap approach, in the Institut für Humangenetik und Medizinische Biologie in Martin- Luther- Universität Halle-Wittenberg in Germany.

As a professor, she has taught for about 15 years some courses (Genetic, Molecular Biology, Bioinformatic, among others) in the Biology Department. Since 2006, she has begun a laboratory (LEGEN) for research at the UNACHI. From 2007-2009 she worked at Centre for Human Genetics, Boston University. Besides of making a training in Clinical Molecular Genetics, which consisted in learning different kinds of clinical molecular tests she carried out a research about mutations responsible for mental retardation in X- linked mental retardation genes. It was funded by Secretaria Nacional de Ciencia, Tecnología e Innovación (SENACYT) and the Centre for Human Genetics. In 2006, they developed the project: "Genetic diseases in the province of Chiriquí: Basic information for the improvement of research, diagnosis and prevention. The UNACHI and Institut fuer Humangenetik und Medizinische Biologie of the Martin Luther Universitaet took part. It was funded by SENACYT. Currently, they have collaboration with the Department of Forensic Science at the University of the State of Oklahoma. Besides, they keep in touch with different genetic laboratories in USA (EMORY, Boston University and others) because of the clinical tests.

At the national level she has had collaboration with Smithsonian Tropical Research Institute and Public Ministry in research related with Biodiversity and Human Identification. Currently, they have collaboration with different public and private hospitals. Her projects mainly focused on the Characterization of genetic diseases, human identification and biodiversity have been the main fields of the projects. The project has been mainly to characterize mutations associated with genetic diseases and to identify individuals using different methods and systems. Their activities and projects have had a big impact in different sectors: health, academic, social and economic. It is the first time, in which institutions work together using genetic approaches to solve national problems in their region. New projects in breast and ovarian cancer will also contribute to solve international health problems.



José María Gutiérrez Gutiérrez

José María Gutiérrez Gutiérrez graduated in Microbiology and Clinical Chemistry in the University of Costa Rica and had a postdoctoral training in Physiological Sciences in the Oklahoma State University in the United States. Between 1988-1996 he was the Director of the Clodomiro Picado Institute, Universidad de Costa Rica. Since 1994, he has worked as a professor in the same Institute, in the Microbiology department of the University of Costa Rica. Since 1999 he has also coordinated the Research department of the Institute. He received many awards, the most recent being: in 1998 the Ancora Award for Sciences, in 2007 the Researcher of the Year Award (Health) of the University of Costa Rica. Between 2007-2009 he was a member of the committee which wrote the *Guidelines for the Production, Control and Regulation of Snake Antivenom Immunoglobulins*, of the World Health Organisation.

He has published almost 300 articles in scientific research journals. Recently, in 2010, he published Gutiérrez, J.M., Williams, D., Fan H.W. & Warrell, D.A. (2010) Snakebite envenoming from a global perspective: Towards an integrated approach. *Toxicon* **56**: 1223-1235.; Estrada, R., Herrera, M., Segura, A., Araya, J., Boschini, C., Gutiérrez, J.M. & León, G. (2010) Intravenous administration of equine-derived whole IgG antivenom does not induce early adverse reactions in non-envenomed horses and cows. *Biologicals* **38**: 664-669; Wallnoefer, H.G., Lingott, T., Gutiérrez, J.M., Merfort, I., Liedl, K.R. (2010) Backbone flexibility controls the activity and specificity of a protein-protein interface: specificity in snake venom metalloproteases. *J. Am. Chem. Soc.* **132**: 10330-10337; and Gutiérrez, J.M. & Moreno, E. (2010) Desarrollo de las universidades públicas de Latinoamérica: una visión alternativa al modelo economicista de rentabilidad.

He also wrote 18 books, the most recent ones being: Gutiérrez, J.M., Rucavado, A. & Escalante, T. (2009) Snake venom metalloproteinases. Biological roles and participation in the pathophysiology of envenomation. En: *Handbook of Venoms and Toxins of Reptiles* (Mackessy, S.P. Ed.). CRC Press, Florida, pp. 115-138; and Gutiérrez, J.M. (2009) Snakebite envenomation in Central America. En: *Handbook of Venoms and Toxins of Reptiles* (Mackessy, S.P. Ed.). CRC Press, Florida, pp. 491-507.

He also published two educational and divulgative books: Gutiérrez, J.M., Rojas, G., Lomonte, B., Gené, J.A. & Chaves, F. (1990) La evaluación de la capacidad neutralizante de los antivenenos en América. Instituto Clodomiro Picado and Gutiérrez, J.M. (2010) Los orígenes del Instituto Clodomiro Picado. San José, Instituto Clodomiro Picado. Finally, he has participated in many conferences, symposiums and international scientific events.



Jose Félix Espinoza

Jose Félix Espinoza graduated in Medicine in the University of Nicaragua-Léon, School of Medicine, León, Nicaragua. Between 1987-1989 he had a fellowship in Infectious Diseases Fellowship in the Instituto Nacional de la Salud, Ramón I Cajal Hospital, Madrid in Spain. He also had a master in Microbiologist in the Karolinska Institute, Stockholm, Sweden in 1996-1997. In the same institute he had his postdoctoral training in Virologist in 2001-2005. Today, he works as a General research Manager at the University of Leon. Since 1982 he has been an Academic Physician at the School of Medicine, University of Nicaragua-León. Since 1989, he has worked as a Professor in the Department of Microbiology, School of Medicine, School of Nursing, and School of Bioanalysis, University of Nicaragua-León. Since 2007, he is also a Program Consultant, National Polio Control Program, Nicaragua. Since 1986 he has also been the Mentor of Master's level students in Microbiology.

He wrote 15 peer-reviewed publications, the most recent ones being Linhares AC, Velazquez FR, Pérez-Schael I, Sáez-Llorens X, Abate H, Espinoza F, López P, Macías-Parra M, Ortega-Barría E, Rivera-Medina DM, Rivera L, Pavía-Ruz N, Nuñez E, Damaso S, Ruiz-Palacios GM, De Vos B, O'Ryan M, Gillard P, Bouckenooghe A, Human Rotavirus Vaccine Study Group. Efficacy and safety of an oral live attenuated human rotavirus vaccine against rotavirus gastroenteritis during the first 2 years of life in Latin American infants: a randomised, double-blind, placebo-controlled phase III study. *Lancet*. 2008; 371:1181-1189; and Sylvia Becker-Dreps¹, MD, MPH, Margarita Paniagua², MS, Rosalie Dominik¹, DrPH, Hongyuan Cao¹, MS, Naman Shah¹, BSPH, Douglas R. Morgan¹, MD, MPH, Gilberto Moreno³, MD, MPH, Félix Espinoza², MD, PhD Changes in Childhood Diarrhea Incidence in Nicaragua Following Three Years of Universal Rotavirus Immunization.

With respect to the FP7 projects, since 2007 he has been the principal investigator of a research on the Characterization of animal strains of rotavirus in Nicaragua. He also was the principal investigator of other projects like the Hospital-based surveillance study following universal immunization, the Molecular characterization of Calcivirus in Central America and the Surveillance of Rotavirus in Central America, "Rotanet". He also assisted at SEA EU NET PROJECT IN MALASYA in August 2010 and to the EULARINET Health workshop in Argentina about detection, diagnosis and monitoring. Finally, he conducted several clinical vaccine trials, to evaluate the immunogenicity and reactivity of the Pentavalent Tritanriz Vaccine for instance.



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- Reports prepared by the EU Rapporteurs of each Dialogue: Environment, Veronica Violante Franscesca Colombo; KBBE, Eduardo J. Trigo; and Health, Ben Berkhout.