

Expertise for collaborative research opportunities on geothermal energy between Latin America and European countries in the scope of 7th Framework Program cooperation actions

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Context for international cooperation with Latin America in geothermal energy

Statements

- *The EU has always occupied a pioneer position concerning exploration and exploitation of geothermal energy*

The Soultz project stands out as a reference model for teams from Chile, for example, or for development of the Berlin field in El Salvador.

- *Cooperation between Latin American Countries (LAC) and the EU has already led to significant results and regular partnerships exist (R&D cooperation, industrial projects)*

Teams within the European Community have been regularly involved in the development phases of geothermal fields. Furthermore, in Chile, strong partnerships still exist with companies such as ENEL or with organisations like BGR, although there is also strong demand for a broader partnership at European scale.

- *Numerous countries in Latin America and the Caribbean are localised within active geodynamic zones that are favourable for hosting natural geothermal fields*

Certain countries, such as Chile, are assessing the need for exploration, identification and evaluation of new exploration targets.

- *Numerous countries in Latin America and the Caribbean have already an advanced experience in the development and management of geothermal exploitation*

This is one of the reasons put forward to extend the ENGINE network to include partners from Mexico (IIE and CICESE) and El Salvador (Lageo). The experience gained will be vital in defining a strategy for geothermal development.

- *Cost-efficiency of geothermal energy is proven for a large range of activities and the technology for low and medium enthalpy, heating and cooling by geothermal heat pumps (GHP) is available*

It is important to illustrate the applicability of existing technologies in the context of Latin American countries, as demonstrated by other renewable energies. Demand is high for the rapid availability of geothermal energy sources for heating and air conditioning.

- *There is a renewed interest for developing new projects at the international scale that concerns how to extend existing known resources and technologies*

The application of permeability stimulation methods is essential for the durability of the geothermal systems currently in activity. The need is well expressed by Mexican or Costa Rican partners for whom the development of new fields is very difficult due to reasons of environmental acceptability and investment.

- *Geothermal energy lacks political support and requires the good co-ordination of scientists and professionals involved in the exploration and exploitation of this resource*

Mexican and Chilean representatives have clearly expressed the need to establish contacts and integrate the scientific and technical research networks.

- *Geothermal energy must participate in the global debate on greenhouse effect and energy supply*

The influence that hydrothermal energy has in Mexico and the recognised potential in Chile lead to the assumption that geothermal energy could become of prime importance in the issue of resource accessibility in a continent that is seeing its natural resources diminish and its dependency rise at an alarming rate (case of Chile).

Identified key issues

Several key issues are identified on which the partnership between EU and LAC should be highly profitable.

Identified key issues	Opportunities	Points of common interest	Proposed actions
Development of geothermal energy requires the undertaking of short-term projects demonstrating the use of cost-efficient geothermal energy (low-to-medium enthalpy, cooling and heating by GHP, etc.)	Exploration of resources, high potential in Chile, Bolivia, Nicaragua, El Salvador, Mexico, Costa Rica	Development of geothermal fields Promotion of existing methodologies for low-to-medium enthalpy, cooling and heating by GHP.	Co-ordination action Know-how transfer and development of links with industrial partners
Development of geothermal energy also requires medium-to-long-term projects that concern Enhanced Geothermal Systems. The Soultz experiment is considered as the international reference by Australian investors and American scientists for whom EGS is one of the few renewable energies that can provide continuous base-load power.	Interest of Chile Existing case histories and international projects (EGS Soultz, Basel, etc., stimulation methods from the Berlin field in El Salvador, Bouillante in Guadalupe, Larderello in Italy...)	The extension of existing geothermal fields	Research and development projects
The potential of geothermal recovery from oil and gas fields has been unexplored until now and has a relatively low-risk	Numerous existing oil and gas fields in Latin America	Identification of the potential of geothermal recovery from oil and gas fields is a key issue for the development of EGS	Research and development projects Specific International Cooperation Action
The co-ordination of such short- and long-term projects requires a well organised scientific community at international level, restored political support and good links with industry and stakeholders	Organisation of workshops and participation in existing international projects	The need for political support	Co-ordination action