

**Keynote Address of Mr. Gilles Bloch
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**Plenary Session
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It is my great pleasure to welcome in Paris, in France, and Europe the community of the CSLF (to which I wish a fruitful work and a convivial stay). The attendance to this opening session shows the strong interest of the international community in urgently developing, at the global scale, technologies to reduce the greenhouse gas emissions. This point is indeed at the heart of the energy-climate equation. The EU must reduce carbon dioxide emissions if it intends to hold the objectives settled first by the Kyoto protocol, and more recently by The European Council (30% by 2020 compared to 1990). We can reduce the mid-term emissions, if we use, at a large scale, renewable energies free from carbon.

However if one gives the priority to the energy efficiency and to renewable energies, the global energy production will inevitably rely, in a foreseeable future, on fossil fuels. Approximately 85% of the energy needs of Europe are currently provided by fossil fuels, which constitute the first sources of carbon dioxide emissions. Moreover, the desirable and equitable growth of the emergent countries (of the rest of the world) will require, in the long term, an increasing use of the quickly exploitable resources of the underground. A dynamic management of carbon flows is thus of prime importance. The generalization and the implementation of the technologies, which bring you together today, will efficiently contribute to this aim.

R & D efforts are still required :

- on the one hand, to make capture and transport of carbon dioxide less expensive,
- and on the other hand, to guarantee the mastery of storage on the long term.

Moreover, one has to be aware that not only scientific or technological questions are to be solved, but also a societal dimension, and the acceptance by the population, have to be taken into account.

Taking into consideration the global challenges of management of carbon, the geological sequestration of CO₂ is only part of the answer, but it has the merit to be able to be implemented relatively quickly.

I will not insist here the principle of precaution, underpinning the French commitment in sustainable growth, which gives priority to the environmental action, and would therefore plead for a fast demonstration of your techniques.

Nevertheless, I would like to emphasize that it is highly suitable to your work be accompanied by a solid scientific approach, which will be clarifying on the long term for the public opinion. If your successes are those which we can expect, the underground storage sites will become scarce, taking into consideration global gas flows. This is why France is particularly attached to diversify the nature of the geological sites to investigate, such as the deep hydro-systems.

For several years, the French authorities have been financing projects on the topic of the sequestration of CO₂ with the support of the BRGM, the CNRS, the IFP, the ADEME and, since 2005, a specific partnership research of the National Research Agency (25 M€ over 3 years).

As far as capture, purification and transport of CO₂ are concerned, equipments and industrial outputs are still to be optimized, modelled and secured by reliable simulations and operating controls, as well as the use of materials enduring high stresses. For the storage itself, operational and estimated modelling are essential. They must integrate the acquisition of fundamental knowledge resulting from the thermodynamic and geochemical approaches, the experience feedbacks and the analysis of the natural analogues. As an example, a network of French laboratories is currently being launched, with the aim of a better understanding of the underground biosphere and its behaviour towards carbonaceous flows.

All these data must consolidate a rigorous monitoring, impact and risk analyzes, as well as appropriate regulation, ensuring the social acceptability of the technique. Of course, socio and techno-economic evaluations remain of paramount importance in the projects and their global extension. This is an ambitious program, in which the French research will be involved in priority, through its European dimension, to help the international co-operation you are representing today.

I am confident that your work in Paris will strongly contribute to this ambitious program. I wish you a fruitful workshop and I thank you for your attention.