

SUCCESS STORY

CO2SOLSTOCK / Biobased Geological CO2 Storage

Research area: FP7 – Cooperation / ENERGY –

Future and Emerging Technologies

Number of partners: 5 among which the University of Lausanne (UNIL)

Start date – End date: 2009-04-01 to 2012-03-31

Duration: 36 months

Funding: € 2 283 345 / UNIL: € 405 209

Type of contract: Collaborative project (CP)



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BIOGEOCHEMIST FINDS INNOVATIVE NEW WAY OF STORING CO2

Professor Eric Verrecchia joined UNIL's Faculty of Geosciences and Environment in 2008. One of his most successful projects, CO2SolStock, received FP7 financing from the European Union under the ENERGY chapter.

What is the purpose of the CO2SolStock project?

To find clean solutions for the geological storage of CO2 over the long run, and ones that are preferably cheap to exploit. Our original method of carbon storage uses bacteria that combine calcium and carbonate to transform CO2 naturally into limestone. Storing carbon in solid form is one way towards the long-term safeguarding of ecosystems.

How could this research be applied?

CO2SolStock has already yielded tangible results. With help from Biomim-Greenloop (a Belgian firm) and Biomimicry Europa (an NGO), my team has obtained financial support for reforestation work in Haiti, from the Yves Rocher Foundation and Grenoble-based firm Jean Hervé.

How does this process work?

Certain tropical species, such as the Tzalam (or Mayan walnut), are able to sequester CO2 from the atmosphere. Through photosynthesis, oxalic acid is then held in the tree tissue, leaves and roots. Bacteria

then consume some of the oxalate which, through a complex chain of biochemical processes, is transformed into calcium carbonate. Limestone in soil reduces acidity levels, thus making the ground more fertile. Research into oxalate-producing trees, which can also be found in Africa, Amazonia and India, is paving the way for a multiplicity of applications, for example in agroforestry (exploitation of semi-precious wood and soil fertilisation). However, the main benefit is that CO2 can be stored ecologically and effectively over the long term.

“CO2SolStock has provided our students with a very high level of training. Four master's degrees have been awarded in connection with this project.”



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ABOUT THE PROJECT

Funded by a European subsidy of over € 2 million, CO2SolStock arches over several scientific fields and harnesses a wide array of complementary techniques, making it a blueprint for future projects in the world of research. Five universities — Lausanne, Neuchâtel, Delft, Granada and Edinburgh (the university coordinating the project) together with a Brussels-based private firm, Biomim-Greenloop — have worked synergistically, with each carrying out work in their respective areas of expertise. The

project, which came to an end in March 2012, had the following aims: investigating lasting solutions using microbiological carbonation sources for the storage of CO2; carrying out a scientific assessment of various pathways (from the surface down to the deepest habitats), and designing a toolkit for scientific assessments.

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