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Put CO₂ away under the sea?

Domestic and international experts discuss impact of carbon dioxide sequestration on marine environment

Technologically speaking it is entirely feasible to separate the carbon dioxide (CO₂) harmful to the climate from the concentrated flue gases of power plants and to compress them into porous rock or sediment layers under the oceans and seas. Yet can the greenhouse gas be stored permanently and safely without doing damage to the marine environment? This issue is the focus of a meeting of German and international experts invited by the Federal Environment Agency (UBA) to Berlin's Federal Press Office on 16-17 June. Discussion will concentrate on the results of a study on the ecological, geological and legal aspects of CO₂ storage at the bottom of the sea. The UBA believes storage should only occur if no damage is done to the marine environment and it actually serves the purpose of effective climate protection.

The technical procedure is known as Carbon Capture and Sequestration, or CCS, and is still in the pilot stage. Bei den zu erwartenden Größenordnungen des zu speichernden CO₂ sind nationale Regelungen erforderlich, die dafür sorgen, dass vor einer Erteilung von Zulassungen für Speicherprojekte potentielle Umweltwirkungen umfassend geprüft werden. International marine protection treaties have already set the framework to meet this end. The integration of CCS into emissions trading should ensure that storage only occurs at sites where it is certain that CO₂ remains under the ocean once it is actually stored. The UBA has defined a guideline for effective climate protection that allows for a maximum annual CO₂ leakage of 0.01 percent, which would mean that after 1,000 years there would still be 90 percent of the stored CO₂ in the caverns.

The issue of how much leaked CO₂ is tolerable for marine ecosystems must also be clarified. Should the climate gas escape from storage to surrounding water, this would lead to its acidification and to damage of calcifying organisms living on ocean bottom, e.g. corals and sea urchins. There has been very little research done about the actual sensitivity of marine organisms to acidification of their habitat. UBA and the authors of the study therefore recommend establishment of a leakage rate of less than 0.01 percent.

UBA regards CCS technology as a mere interim solution until other climate protection measures, for example the use of renewable energies and improved energy efficiency, can be satisfactorily implemented.

The workshop programme can be downloaded from:

<http://www.umweltbundesamt.de/service/termine/termine.php#6>.

The UBA position paper *CO₂ Capture and Storage - Only an Interim Solution* (English summary available) is available for download at: [http://www.umweltbundesamt.de/uba-info-](http://www.umweltbundesamt.de/uba-info-medien/mysql_medien.php?anfrage=Kennummer&Suchwort=3074)

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The final report *Assessment of technologies for CO₂ capture and storage - Summary* is available at [http://www.umweltbundesamt.de/uba-info-medien-](http://www.umweltbundesamt.de/uba-info-medien-e/mysql_medien.php?anfrage=Kennummer&Suchwort=3076)

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