# Clean Development Mechanism: no place for Carbon Capture and Storage

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The Kyoto Protocol's Clean Development Mechanism (CDM) was created to aid clean development by allowing wealthy nations to invest in the developing world as a way to cut their greenhouse gas emissions and claim credits against their own emission reduction targets.

It is intended to help the developing world leapfrog dirty development and avoid dependence on coal and other fossil fuels. According to the rules governing the CDM, projects must promote fair geographic distribution and should lead to the transfer of environmentally safe and sound technology. CDM projects must be cost-effective and also contribute to sustainable development.

Carbon Capture and Storage (CCS), the process of capturing, transporting and storing CO<sub>2</sub> from coal fired power stations, does not meet any of these criteria, yet some governments continue to push for its inclusion.

## CCS has not been proven to be 'safe and sound'

There is currently no proof that CCS is a 'safe and sound' technology. There is no experience of large-scale storage sites and little information on the effects of injecting large amounts of CO<sub>2</sub> underground.

The criteria for site selection, issues of seepage/leakage, liability and monitoring are complex and have still not been properly addressed in developed countries. At this stage, transferring CCS projects to developing countries would mean using them a test bed for the technology. Developed countries would reap the benefit, leaving developing countries to shoulder the long-term burden.

CCS can be tested wherever a coal-fired power plant and a geological formation suitable for CO<sub>2</sub> storage exists. As Europe and other industrialised countries have plenty of coal-fired power plants emitting hundreds of millions of tons of CO<sub>2</sub>, there is no need to use developing countries as "guinea pigs".

#### Long term implications

The end of a CCS project would not be the end of costs or responsibility. In contrast to such CDM projects as building a wind farm, which has a clear time and cost-limit for its construction, the end-date of CCS projects cannot be predicted in advance. The time-frame could range from many decades to hundreds of years depending on the geological formation, the amount of CO<sub>2</sub> stored, and how the CO<sub>2</sub> behaves underground. The host country would very likely become responsible and liable for the storage sites in the long-term although there are as yet no guidelines for this. Furthermore, monitoring of storage could go on indefinitely.

#### CCS will not contribute to sustainable development

CCS is expensive making it unsuitable for small scale projects and few benefits are expected to come from large scale CCS. It will only provide employment to a limited number of people indirectly and directly during construction, operation and monitoring. Moreover, the technology is energy-intensive and increases consumption of coal by 30%. This increased demand would push up the price of coal and there would be an increase in the environmental damage related to coal mining. The costs of electricity could almost double, depending on the plant and capture type.

### No equitable distribution of projects

The already uneven distribution of CDM projects would increase as CCS projects would not be distributed equally. Only a limited number of developing countries and countries in transition with a share of coal-fired power plants and those exporting oil and gas would be considered for such projects.

#### CCS is not a cost-effective mitigation technology

Cost estimates for CCS vary considerably depending on factors such as power station configuration, the type of technology, fuel costs, size of project and location. But one thing is certain, CCS is expensive and a number of CCS projects in developed countries have already been abandoned because of high costs.

Significant funds are required to construct the power stations and necessary infrastructure to transport and store carbon. The Intergovernmental Panel on Climate Change estimates the cost between US\$15-75 per ton of captured CO<sub>2</sub>. Other sources give ranges between \$25 to 100/t CO<sub>2</sub>.

Monitoring is also expensive. Remedying CO<sub>2</sub> leakage would cost even more and may happen long after operation has ended. Estimated costs for monitoring geologic storage sites over the full life-cycle of a project (assumed to be 30 years operation and 50 years post-operation) can range from \$0.05 to \$0.10 per t. of stored CO<sub>2</sub>. Although small in comparison to the cost of capture, it nevertheless may represent up to \$50 to \$80 per t. CO<sub>2</sub> over the life cycle of a typical project. These costs increase if a longer post-closure timeframe is taken into account.

#### Offsetting industrialised country emissions

Industrialised countries offset their own emissions by purchasing 'credits' which help them to achieve their Kyoto commitments. Accumulating large amounts of credits from CCS under the CDM would lower the amount of action those countries take domestically. One crucial feature of the CDM is that it generates new credits which are added to the overall greenhouse gas "budget" established by the Kyoto Protocol for industrialised countries, meaning coal-fired power plants could carry on business-as-usual, while capture and storage takes place in developing countries.

### Diverting funds from genuinely clean technologies

Large amounts of money allocated for CCS pilot projects may mean funds are no longer available for clean solutions, such as renewable energy projects. In recent years, the share of research and development budgets in some developed countries pursuing CCS has ballooned, with CCS often cynically included as part of renewable energy packages. Australia for example has three cooperative research centres for fossil fuels, one particularly committed to CCS. There is not one for renewable energy technology.

#### Conclusion

Projects under the CDM should focus on renewable energy and energy efficiency, increasing access to clean, reliable and affordable energy in developing countries on a regional as well as local scale. A CDM project should improve social, economic and environmental well being. CCS projects do not deliver this.