

SOUTH AFRICAN ACTIVITIES RELATED TO CARBON CAPTURE AND STORAGE, SEPTEMBER 2005

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1. INTRODUCTION

South Africa joined the CSLF during 2003, its major interest being in addressing carbon capture and storage technologies that could address mitigation of emissions that could affect climate change. To this end, a number of activities have already been undertaken.

2. ACHIEVEMENTS

2.1 Storage Potential

The Department of Minerals and Energy has already undertaken a study to ascertain the potential for carbon storage¹. A summary is given in the table below. The outcome of that report was that South Africa has a potential to store carbon dioxide, and that the most appropriate source for the first investigation would be the 30 million tonnes per year of 95% carbon dioxide emitted by Sasol.

Potential sink	Tonnage (million ton/year)	Duration (years)	Comments
Afforestation	3.9	20	An effort is required to store CO ₂ in "perpetuity"
Reduced tillage	0.4	20	
Savanne thickening	7.9	20	
Gas reservoirs	1	Very long	There may be enhanced gas recovery
Mines	10	Site specific	More study is required
Vryheid formation	18375 million total	Very long	Relatively poor porosity and permeability, more study is required
Katberg formation	1600 million total	Very long	
Coalbed methane	Small	Long	It may enhance methane recovery
Chemical capture	1 – 5 /year	Indefinite	Large volume of "reactive material" required
Deep ocean	Nearly unlimited	Several hundred years	Deep ocean ecosystems poorly understood
Ocean fertilisation	Not known	Not known	Study required.

Very long = probably millions of years

Long = probably 100,000' of years

2.2 Capacity Building

The technology of carbon capture and storage, although not unknown, is not currently practiced in South Africa. Therefore, current participation in the CSLF has been to build knowledge capacity through inter alia attendance at workshops and conferences where carbon capture and storage matters are addressed; from technology to

¹ See www.dme.gov.za/publications/pdf/annual_reports/contract_report_potential.pdf



governance/regulation.

2.3 Related Experience

Although South Africa has no carbon capture and storage projects underway, it has technical expertise in the sub-categories required for such a project. These expertise areas include:

- (a) Gasification of coal and gas (Sasol and PetroSA)
- (b) Transport of large volumes of gas via pipeline.
- (c) Geology
- (d) Drilling

3. OUTREACH

It is still early days in the formulation of a carbon capture and storage programme in South Africa. Nevertheless, a number of initiatives are underway. These include:

- (a) Keeping the South African National Committee on Climate Change informed of the activities.
- (b) Presentation of papers at conferences.
- (c) Listing of reports on the Department of Minerals and Energy's website.
- (d) Liaising with various associations and scientific bodies.

The current focus is to those sectors that are sensitive to carbon capture and storage. It is the intention to ascertain the successes and failures of other Member's activities in this field and apply then as appropriate.

3. FUTURE PLANS

Prospective actions include:

- (a) Continue interfacing with stakeholders in the field.
- (b) Develop inputs to a "road map".
- (c) Address the legislative/regulatory gaps analysis.
- (d) Investigate the possibility of storing the 30 million tonnes per year of 95% carbon dioxide emitted by Sasol in such a way that it would make economic sense.