Technology Fact Sheet for Mitigation

K. Enhanced Peat /Coal-bed methane recovery (ECBM)[1] [i]

1. Introduction	
1.1 Historical	-Technology of producing methane from coal /peat seams is operational mainly in countries like USA since 1980s
1.1. Location of Resources	In low lands of Bugesera, Nyanza, Gisagara and Rusizi districts
1.2. Variability of Resources	None renewable
2. Brief Description	
2.1. Conditions	- Exploration, prefeasibility studies - Design for a proper drilling, injection of CO_2 for displacing methane from the seams
2.2. Characteristics	- Extraction of the combustible CH_4 - Combustion of CH_4 (directly fired in a boiler for driving a steam turbine and generating electricity) - Or, after an appropriate treatment of this CH_4 gas, running a gas engine for further electricity production - Or, directly burned for heat and cooking but also for any industrial purposes - Liquefaction of methane for cooking and thermal application in industries
3. Applicability and Potentialities in Rwanda	
3.1. Applicability	- Applicable at small scale in rural areas

[1] Refer to: Schroeder K, Ozdemir E. and Morsi B.I (2002); Sequestration of Carbon Dioxide in Coal Seams. Journal of Energy and Environment Research.Vol.2(1).pp54-63; and to Gale J. and Freund P(2001) Coal-bed methane enhancement with co_2 sequestration worldwide potential; Environmental Geosciences, vol 8 (3), pp 210-217

	near peat reserves
3.3. Potentialities	- Limited to peat resources
3.4. Limitations	- Cost of technology
4. Status of the Technology in Rwanda	
4.1. Local Production	NA
4.2. Shared Power Plants	NA
4.3. Projects	NA
5. Benefits to Development	
5.1. Social	- Refer to above technologies
5.2. Economic	- Idem
5.3. Environmental	- The CO_2 is captured and injected into the seams and rocks - The CH_4 is collected as an output product
6. Climate Change Mitigation Benefits	
6.1. Reduction GHG Emissions	Replacement of wood fuel and of fossil fuels ECBM results in methane products and, once combined to the CCS systems, can widely contribute in GHG mitigation: About 79% of reductions can be achieved
6.2. Low Carbon Credits	Highly recommended especially because of potential large diffusion of such a technology at small scale for rural communities
7. Financing Requirements and Costs	
7.1. Private Sector Involvement	- Small funds and loans for promoting the use of methane gas
7.2. Capital Cost	- about 3 250 USD/kW
7.3. O & M Costs	- Generation cost: about 8.5 US cents/kWh in year 2005 and projection

	to 7 US cents/kWh in year 2015; O & M cost: 22% of above generating cost;
7.4. GHG Emissions	- Refer to above CCGT technology - ECBM combined to CCS is in fact similar to CCGT with CCS
7.5. Capability Building	- Idem

[i] **This fact sheet has been extracted from TNA Report – Technology Needs Assessment and Technology Action Plans For Climate Change Mitigation– Rwanda. You can access the complete report from the TNA project website http://tech-action.org/**