CO2 emissions from Derba Midroc Clinker production (base data)		
	Value and unit	Data source:
Calcinations process	525 kg/t clinker	The Cement CO2 Protocol, WBCSD working group Oct. 2001
Fuel firing	745 kcal/kg clinker = 3.119 GJ/t clinker	Design specifications for Derba Midroc plant
Electricity consumption	0.108 MWh/t cement	Design specification for Derba Midroc plant
Coal as fuel	93 t CO2/ 1000 GJ	Based on CDIAC data (US DOE) from: http://cdiac.ornl.gov/trends/emis/factors.htm
Electricity production	8 kg CO2 / MWh	WBCSD, CO2 Accounting and Reporting Standards for the Cement Industry, June 2005. Ethiopian national data
CO2 emission from electricity production	8 kg CO2/MWh * 0.108 MWh/t cement = 1 kg CO2/ tons cement	
Clinker percentage in cement (base data)		
	Value and unit	Data source:
OPC (ordinary Portland Cement)	95% clinker	Derba Midroc operational assumption
Blended cement	67% clinker	Derba Midroc operational assumption, with local pumice as additive

Fuel caused CO2 emissions at Derba Midroc (clinker based):		
Coal:	93 * 3.119 / 1,000 =	290 kg CO2 / t clinker
Combined calcinations and fuel caused CO2 emissions (clinker based):		
Coal	290 + 525 =	815 kg CO2 / t clinker
Final emissions per unit cement, including electricity caused emission:		
Coal based, OPC	0.95 * 815 + 1 =	775 kg CO2 / t cement
Coal based, blended	0.67 * 815 + 1 =	547 kg CO2 / t cement

Total CO2 emissions based on 30% OPC and 70% blended cement and a total production of 2.46 M tons of cement per year:		
Coal	0.3 * 2.46 * 0.775 + 0.7 * 2.46 * 0.547 =	**1.51 M tons CO2 / year**