



## environment, forestry & fisheries

Department:  
Environment, Forestry and Fisheries  
REPUBLIC OF SOUTH AFRICA

- $SOC_0$  = soil organic carbon stock in the last year of an inventory time period, t C
- $SOC_{(0-t)}$  = soil organic carbon stock at the beginning of the inventory time period, t C
- $SOC_0$  and  $SOC_{(0-T)}$  are calculated using the SOC equation in the box where the reference carbon stocks and stock change factors are assigned according to the land-use and management activities and corresponding areas at each of the points in time (time = 0 and time = 0-T)
- T = number of years over a single inventory time period, yr
- D = Time dependence of stock change factors which is the default time period for transition between equilibrium SOC values, yr. Commonly 20 years, but depends on assumptions made in computing the factors  $F_{LU}$ ,  $F_{MG}$  and  $F_i$ . If T exceeds D, use the value for T to obtain an annual rate of change over the inventory time period (0-T years).
- c = represents the climate zones, s the soil types, and i the set of management systems that are present in a country.
- $SOC_{REF}$  = the reference carbon stock, t C ha<sup>-1</sup>
- $F_{LU}$  = stock change factor for land-use systems or sub-system for a particular land-use, dimensionless.
- $F_{MG}$  = stock change factor for management regime, dimensionless
- $F_i$  = stock change factor for input of organic matter, dimensionless
- A = land area of the stratum being estimated, ha. All land in the stratum should have common biophysical conditions (i.e. climate and soil type) and management history over the inventory time period to be treated together for analytical purposes.

### Data required for estimates in the MRV tool

**Table C.9: Data required for the estimates, Soil Organic Carbon (SOC)**

<b>Facility ID</b>	Enter the unique facility ID
<b>Activity</b>	Forest management, Afforestation or Deforestation
<b>Previous land use category</b>	Forest Management, Afforestation, Deforestation, Grassland, Annual Cropland, Perennial Cropland or Other
<b>Ownership</b>	Company owned or 3 <sup>rd</sup> party (please specify)
<b>Area / Area in the current year <math>t_i</math></b>	Enter value in ha
<b>SOC</b>	SOC in t C/ha, use of <b>Sheet Supporting Calculations</b> is possible if value is not known. Note that the calculated $\Delta C$ SOM should be positive (+) in the case of Forest Management and Afforestation; and negative (-) in the case of Deforestation