

Use of the stock difference method to estimate the emissions/removals

The “logical” equation seems to be:
(C stock t2 - C stock t1)

→ **WRONG** if the area change
between t1 and t2 !!!

If area changes, the correct formula is:
((C stock /area)t2 – (C stock/area)t1) * area t2

IPCC 2013 KP SUPPLEMENT:

2.3.3 Correct implementation of C stock change estimation methods when areas are changing

The carbon stock-difference method outlined in the *2006 IPCC Guidelines*²³ requires information on carbon stock for a given area, at two points in time. When using this method for a specific activity, it is important to ensure that the area of land in that activity at times t_1 and t_2 is identical, to avoid confounding changes in stock caused by area changes. Per unit of area at time t_2 , the annual stock change is the difference between the carbon stock at time t_2 and time t_1 , divided by the number of years between the inventories. If the forest area is changing, for example as a result of D, AR, or both, then carbon stock changes can occur as a result of the transfer of land between UNFCCC or KP reporting categories (see Figure 11 in Kurz *et al.* (2009) for an example). Examples of possible approaches that can be implemented to address this issue are provided below.

Countries that use the IPCC stock-difference method for the calculation of stock changes²³ need to ensure that actual carbon stock changes are reported, and not artefacts resulting from changes in area over time. One example that represents good practice is to implement the calculations of annual carbon stock changes when

Box 2.3.3 EXAMPLE		
During a year of the CP the area of land reported under FM varies because new forest land (natural forest expansion or previously unmanaged forest land that becomes subject to management) is added to the FM area and because of deforestation activities:		
	At the start of year	At the end of year
Area of forest lands that was subject to FM in the previous year	1,000,000 ha	990,000 ha
Area of lands subject to FM converted to non-forest land	0 ha	10,000 ha
Area of new forest lands subject to FM	0 ha	10,000 ha
Total area subject to FM	1,000,000 ha	1,000,000 ha