



Stakeholder progress report

Background

- 1 The LUCAS (Land Use and Carbon Analysis System) programme was established to enable New Zealand to meet its reporting and accounting obligations under Article 3.3 of the Kyoto Protocol for Land Use, Land-Use Change and Forestry (LULUCF) activities. LUCAS tasks are being undertaken in a manner designed to meet Intergovernmental Panel on Climate Change Good Practice Guidance (IPCC GPG) – (IPCC 2003).
- 2 The LUCAS programme involves mapping land use at 1990, and then mapping land-use changes for the time periods 1990–2007 and 2008–2012 (the first Commitment Period). All mapping has involved the extensive use of satellite imagery, some aerial photography and other spatial data.
- 3 The 2008 National Inventory Report, which is due for submission in April 2010, will be the first time LULUCF sector data has come from LUCAS.
- 4 Previous Inventory Reports have used the National Exotic Forest Description (NEFD) – developed and administered by the Ministry of Agriculture and Forestry (MAF) – which has proven to be a good proxy until the LUCAS data was delivered.

Results of the LUCAS mapping

- 5 LUCAS has mapped post-1989 forest (Kyoto forest) area as 566,106 hectares. This is 18,000 hectares lower than the estimate of eligible Kyoto forest area used in the 2009 Net Position Report based on the NEFD.
- 6 The new LUCAS Kyoto forest area figures would reduce the estimated uptake by the post-1989 forests by approximately 3 million tonnes CO₂ over the period 2008 to 2012. **Everything else being equal** this would reduce the Kyoto surplus from 9.6 million units to about 6.6 million units.
- 7 The results of the LUCAS mapping are shown in Table 1 below:

Table 1: Summary of key land-use categories (hectares) mapped by LUCAS

Class	Description	1990	2008	Difference
71	Natural Forest (key category)	8,141,990	8,087,091	-0.7%
72	Planted Forest – pre-1990 (key category)	1,478,847	1,451,900	38%
73	Post-1989 Forest (key category) Kyoto-eligible forest		566,106	
74	Grassland – with woody biomass (key category)	1,151,909	1,029,415	-10.6%
>74	Non key classes	15,979,770	15,618,003	-2.3%
	Total	26,752,516	26,752,516	

- 8 The area of Kyoto-eligible forest is expected to increase further because there is up to 150,000 ha of pre-1990 Planted Forest yet to be assessed for Kyoto eligibility. This area largely comprises small forest blocks (<20 ha in size) where higher resolution data is required to definitively classify the areas into pre- or post-1989 area. Assessment of this data is scheduled to be completed by the end of January 2010.
- 9 The area reported in Table 1 includes deforestation that occurred up to 31 December 2007. Mapping of deforestation for 2008 is still in progress and is due to be completed by September 2009. Mapping and reporting of deforestation will occur annually through the Commitment Period but the final area of deforestation will not be defined until 2013 when the second tranche of land-use mapping from newly acquired satellite imagery has been completed.
- 10 Our estimate is that allowing for the additional Kyoto-eligible forest that could be derived from the pre-1990 Planted Forest refinement work (mentioned in paragraph 8 above) and the potential deforestation activity, the 566,106 ha could increase by 3% to 5% (16,980 ha – 28,300 ha) when our final report is tabled in April 2014.
- 11 The results presented from LUCAS are derived from the best available data at the current time and do require improvement. Planned improvements include:
 - a. integration of data being collected through the Land Use, Land-use Change and Forestry sector of the Emissions Trading Scheme, the Permanent Forest Sink Initiative and other sources, as they become available through the Commitment Period
 - b. the mapping of grassland with woody biomass, deforestation, and land-use changes occurring in areas less than 5 ha in size.
- 12 A second tranche of mapping for the 2012 position will start in the summer of 2011 (October–December) to map land cover as at 31 December 2012. This tranche of mapping is not scheduled to be finalised until June 2013 and will provide the definitive position on the area of Kyoto-eligible forest for New Zealand.

Context with net position

- 13 At a carbon price of NZ\$25.00 / tonne carbon dioxide the variability measured by the range between the highest and lowest estimate for removals by Article 3.3 forests is NZ\$378million (\$NZ25 x (92.3 – 77.2)).
- 14 Historically, the net removals from forests have been variable over time. There has been uncertainty in the level of deforestation during the first Commitment Period and the estimate of removals by Article 3.3 forests.

Table 2: Reconciliation of historic Article 3.3 removal projections and deforestation for Commitment Period 1

(Millions of tonnes carbon dioxide)	May 2005	Dec 2005	May 2006	May 2007	May 2008	May 2009
Removals by forests (Article 3.3)	77.2	77.2	78.2	79	84.1	92.3
Deforestation emissions	6.3	21	38.5	41	30.5	24.2
<i>Effect of cap on deforestation emissions</i>			17.5	20		
<i>Effect of ETS on deforestation</i>					13.6	16.9
Net removals from forests	70.9	56.2	57.2	58	67.2	85

- 15 This variability can be explained by the shift from the use of models and estimates to actual maps of the area of forest. The level of deforestation will remain uncertain until final data is available in 2013.

**Published in July 2009
by the Ministry for the Environment
INFO 428**

+ NEED MORE INFORMATION?

The New Zealand Land Use and Carbon Analysis System is a programme of work set up to measure and monitor the amount of carbon (carbon stocks) held in New Zealand's forests and soils.

Carbon stock information is required for New Zealand's reporting requirements under the Kyoto Protocol and the United Nations Framework Convention on Climate Change (UNFCCC). LUCAS is an important part of the Government's climate change policy package and will help inform New Zealand's future international climate change negotiations.

If you require more information about the LUCAS programme, the available SPOT 5 imagery, the LUCAS web pages, or the natural and planted forest inventory activities (including the use of airborne LiDAR) please email lucas@mfe.govt.nz

To subscribe or unsubscribe from this newsletter please email lucas@mfe.govt.nz

Published in June 2009 by the Ministry for the Environment, Manatu Mo Te Taiao, PO Box 10362, Wellington, New Zealand.