

Uncertainty calculation for the New Zealand Greenhouse Gas Inventory 1990 - 2003 including LULUCF (following IPCC Tier 1)

IPCC Source category	Gas	Base year emissions or absolute value of removals	Year t emissions or absolute value of removals	activity data uncertainty	emission or removal factor uncertainty	combined uncertainty	combined uncertainty as a % of the national total in year t	type A sensitivity	type b sensitivity	Uncertainty in the trend in national totals introduced by emission or removal factor uncertainty	Uncertainty in trend in national total introduced by activity data uncertainty	Uncertainty introduced into the trend in the national total	Emission /removal factor quality indicator	Activity data quality indicator	column H^2	column M^2
Energy sector	CO ₂	22652.63	31229.51	5	0	5	1.50	0.0410	0.3666	0.0000	2.5921	2.59	M	R	2.242470476	6.719174407
Industrial processes sector	CO ₂	2662.18	3470.04	5	0	5	0.17	0.0025	0.0407	0.0000	0.2880	0.29	M	R	0.027686248	0.082957047
LULUCF sector - forest land	CO ₂	23638.06	27349.40	5	25	25	6.69	-0.0185	0.3210	-0.4634	2.2701	2.32	M	R	44.71622645	5.367985088
LULUCF sector other land use categories	CO ₂	NE	1540.60	15	184	185	2.73						M	R	7.439580245	
Energy sector	CH ₄	796.92	840.98	5	50	50	0.41	-0.0016	0.0099	-0.0789	0.0698	0.11	D	R	0.164243373	0.01109773
CRF2A - mineral products	CH ₄	NO	NO													
CRF2B - chemical industry	CH ₄	21.59	42.91	45	120	128	0.05	0.0002	0.0005	0.0232	0.0321	0.04	D	R	0.002781679	0.001566968
CRF4A - enteric fermentation	CH ₄	21530.77	23592.21	2	53	53	12.00	-0.0323	0.2769	-1.7136	0.7833	1.88	M	M	144.0002951	3.549933417
CRF4B - manure management	CH ₄	574.51	549.44	2	100	100	0.53	-0.0018	0.0064	-0.1805	0.0182	0.18	M	M	0.277765594	0.032900529
CRF4E- prescribed burning	CH ₄	2.82	0.84	20	60	63	0.00	0.0000	0.0000	-0.0018	0.0003	0.00	D	R	2.61029E-07	3.44926E-06
CRF4F - burning of residues	CH ₄	18.78	22.91	50	40	64	0.01	0.0000	0.0003	0.0000	0.0190	0.02	D	R	0.000197997	0.000361748
LULUCF sector	CH ₄	88.90	85.68	10	35	36	0.03	-0.0003	0.0010	-0.0095	0.0142	0.02			0.000894578	0.000292591
CRF 6A - Solid waste disposal	CH ₄	2177.70	1425.48	0	20	20	0.27	-0.0146	0.0167	-0.2910	0.0000	0.29	M	R	0.074754711	0.08470448
CRF 6B - wastewater handling	CH ₄	156.66	166.11	0	20	20	0.03	-0.0003	0.0019	-0.0060	0.0000	0.01	D	R	0.001015098	3.62352E-05
Energy sector	N ₂ O	144.56	250.43	5	50	50	0.12	0.0009	0.0029	0.0431	0.0208	0.05	D	R	0.014564425	0.002292384
CRF4D -Agricultural soils	N ₂ O	10021.98	12968.99	5	73	73	9.10	0.0082	0.1522	0.6010	1.0765	1.23	M	M	82.82220176	1.519918001
CRF4B - manure management	N ₂ O	15.91	61.07	5	100	100	0.06	0.0005	0.0007	0.0488	0.0051	0.05			0.003438435	0.002410034
CRF4E- prescribed burning	N ₂ O	0.51	0.15	20	60	63	0.00	0.0000	0.0000	-0.0003	0.0001	0.00	D	R	8.71091E-09	1.15107E-07
CRF4F - burning of residues	N ₂ O	6.46	7.61	50	40	64	0.00	0.0000	0.0001	-0.0001	0.0063	0.01	D	R	2.18645E-05	3.99654E-05
LULUCF sector	N ₂ O	9.02	8.70	10	35	36	0.00	0.0000	0.0001	-0.0010	0.0014	0.00			9.21359E-06	3.01352E-06
CRF6B - wastewater handling	N ₂ O	145.70	162.89	0	1200	1200	1.87	-0.0002	0.0019	-0.2176	0.0000	0.22	D	R	3.513966372	0.047348263
CRF2F	HFCs	0.00	403.96	105	60	121	0.47	0.0047	0.0047	0.2845	0.7041	0.76	D	R	0.219497275	0.576739654
CRF2C	PFCs	515.60	80.70	0	30	30	0.02	-0.0065	0.0009	-0.1938	0.0000	0.19	M	M	0.000539071	0.037562048
CRF2F	SF ₆	9.46	12.38	66	63	91	0.01	0.0000	0.0001	0.0006	0.0136	0.01			0.00011735	0.000184333
Total emissions/removals		85190.71	104272.99				Uncertainty in the year	16.9%		Uncertainty in the trend	4.2%				285.522268	18.0375115

assumptions as per IPCC GPG

1. where only total uncertainty is known for a source category then the following rules have been used.

- a) if uncertainty is assumed to be correlated across years, then total uncertainty is entered as emission factor uncertainty
- b) if uncertainty is assumed not to be correlated across years, then the total uncertainty is entered as activity data uncertainty

2. Column K: The same emission factor is used in both years and the emission factors are fully correlated.

3. Column L: The activity data in both years is assumed independent (not correlated).

Note that the total shown will not equal the gross or net totals reported in the CRF/NIR as not every source is specified in the uncertainty analysis