

Stage II Review 2005...



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Aims of Stage II review

1. Perform an initial check of inventory timeliness, consistency, completeness & comparability
2. Providing Parties with information to allow you to improve next year's submission...

Review 2005

1. IIRs in review process
2. Consistency & Comparability Tests:
 - Time-series Checks (dips & jumps...)
 - Implied Emission Factor (IEF) Checks
3. Country feedback

Use of Informative Inventory Reports

- Increase in IIRs received from 7 (2004) to 12 (2005)
- Template provided for IIRs in 2005
- Reports varied from 7 pages (templates) to 168 pages...
- Generally good information on certain issues (e.g fuel sold/consumed)
- Less information on e.g. reasons for time-series inconsistencies

Time-series consistency – Why?



- Aim: Identify instances of dips, jumps, and sudden trends in time-series data reported by countries.
- Consistent time series important for policy analysis, modelling calculations
- Provides an indication of possible inconsistencies in activity data, EFs, calculations etc.

Time-series consistency – (2)

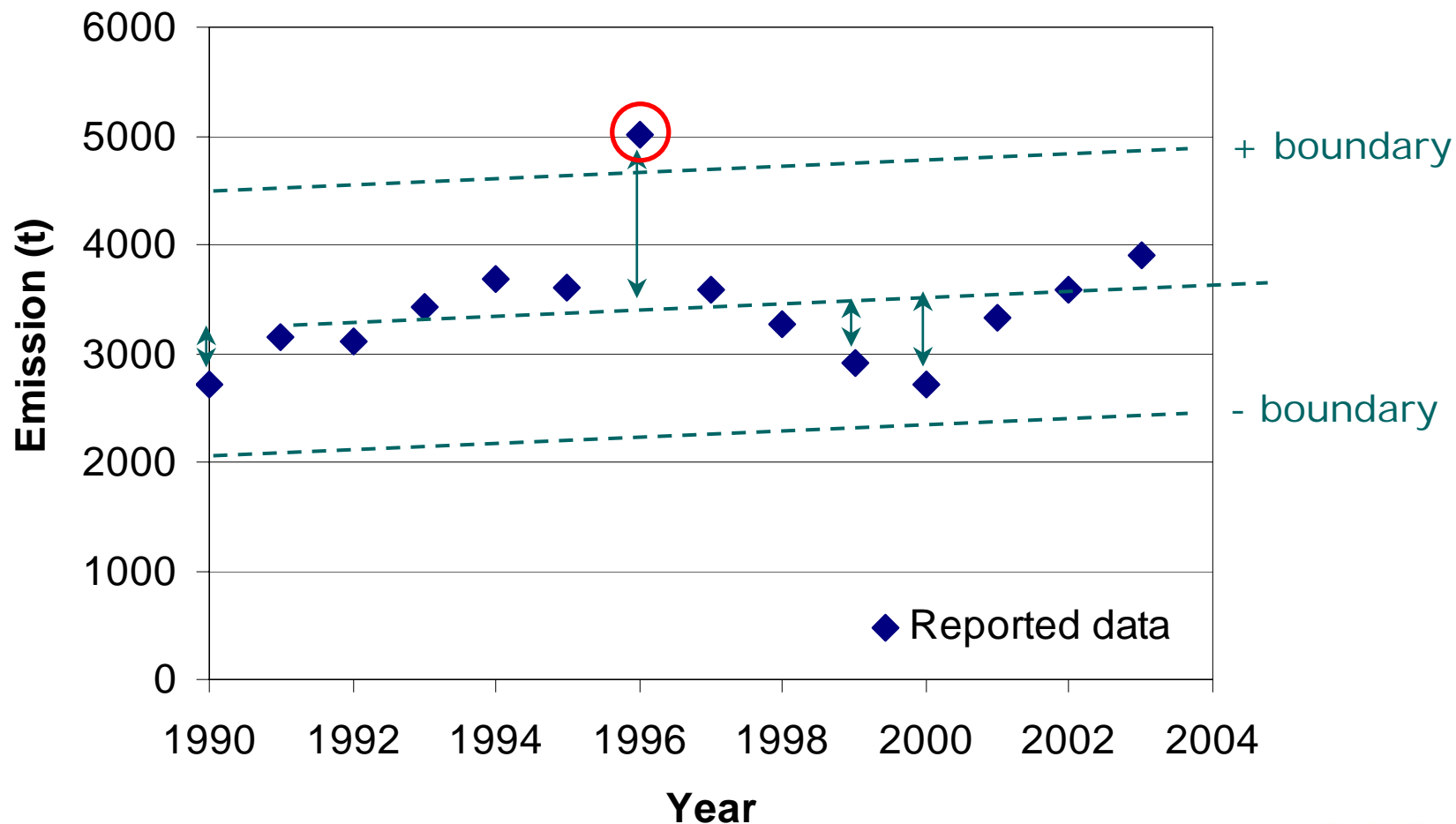
- BUT, can also have a logical explanation (e.g. greater fuel use during a cold winter...etc)

Data analysed:

- Data in new NFR reporting format; and
- Data for which a complete time series was reported 1990-2003.

Timeseries consistency – How?

PM10 Emissions, Sector 1A1a



Timeseries checks: example output

Colour Key	
	indicates a dip in the Time Series Data
	indicates a jump in the Time Series Data

Source	component	sectorcode	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CLRTAP	As	1 A 2 b	1.88	1.59	1.48	1.56	1.56	1.62	1.62	1.43	1.34	1.13	0.85	0.31	0.37	0.05
CLRTAP	Cd	1 A 2 b	3.62	3.53	3.51	3.70	3.64	3.63	2.95	3.42	1.50	2.01	2.49	1.04	1.43	0.33
CLRTAP	CO	1 A 2 b	47042.44	46754.32	45351.60	48186.40	45306.74	48381.21	45929.00	49158.81	47078.87	73704.28	78504.71	83593.53	86895.78	1384.40
CLRTAP	CO	1 A 4 c ii	9008.86	9008.86	8797.86	8846.55	8619.31	8375.85	9393.20	9051.93	9570.95	8139.89	7713.26	5913.25	5165.17	2463.55
CLRTAP	CO	1 B 1 b	27010.12	25052.97	22806.92	21350.07	21650.42	21682.02	21649.65	21649.21	21537.97	15366.69	16885.32	6274.89	435.71	11711.14
CLRTAP	CO	6 C	22531.09	22423.08	22377.09	22366.08	21790.15	21406.83	21897.17	20912.24	22510.74	22520.64	22519.67	43713.27	22530.29	22531.17
CLRTAP	Cr	1 A 2 b	0.15	0.15	0.16	0.18	0.19	0.20	0.20	0.20	0.21	0.22	0.18	0.17	0.76	0.42
CLRTAP	Hg	1 A 2 b	2.88	2.98	2.94	3.12	2.92	2.92	2.29	2.02	1.40	0.36	0.75	0.74	0.22	0.01
CLRTAP	Indeno	6 C	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.40	0.25	0.25
CLRTAP	NH3	1 B 2 a iv	51.60	51.60	51.60	51.60	51.60	51.60	51.60	51.60	51.60	52.10	53.40	55.90	57.40	71.85
CLRTAP	Ni	1 A 4 c ii	1.15	1.15	1.12	1.13	1.10	1.06	1.20	1.16	1.23	1.03	0.98	0.73	0.63	0.26
CLRTAP	NMVOG	1 A 1 a	7074.55	6978.63	6580.58	6396.72	7157.34	7460.02	7993.70	7136.12	5426.03	6702.78	6846.99	6689.73	6919.23	6708.63
CLRTAP	NOx	1 A 4 c ii	27459.48	27459.48	26770.36	26929.39	26187.26	25392.13	28708.13	27587.07	29273.55	24564.69	23124.61	17019.23	14196.95	5627.64
CLRTAP	PAH	6 C	2.61	2.61	2.61	2.60	2.60	2.60	2.60	2.59	2.59	2.59	2.59	3.49	2.59	2.59
CLRTAP	Pb	1 A 2 b	47.90	43.64	41.61	44.07	42.97	43.12	37.49	34.51	26.04	24.88	23.84	26.44	29.54	11.93
CLRTAP	PM10	1 A 4 c ii	3029.16	3029.16	2953.13	2970.68	2888.81	2801.09	3167.29	3044.01	3230.57	2711.39	2552.96	1878.48	1562.87	620.25
CLRTAP	PM10	1 B 2 c	1688.18	1529.82	1491.74	1487.51	1983.75	1443.39	1534.63	1282.61	1275.35	1333.13	1096.45	1092.81	1006.66	1006.66
CLRTAP	PM10	2 A 4	22.87	21.11	16.42	11.73	11.73	11.73	11.73	48.91	5.10	5.10	7.85	7.85	7.70	7.70
CLRTAP	PM10	6 C	6030.95	6016.44	5955.06	5793.86	5406.03	5171.91	4898.16	4495.84	4474.37	4454.56	4449.24	8301.27	4441.88	4441.93
CLRTAP	PM10	1 a 3 a i (ii)	920.85	908.44	1005.67	1066.93	1117.62	1189.56	1262.90	1345.02	1497.11	1625.40	1791.91	1748.77	1716.46	0.00
CLRTAP	PM10	1 A 3 a ii (ii)	50.87	50.11	50.41	53.82	49.92	53.53	58.31	60.40	66.50	73.09	80.24	84.55	86.23	0.00
CLRTAP	Zn	1 A 2 b	157.65	139.52	133.41	139.56	144.46	150.94	151.19	149.35	125.21	111.74	116.13	84.36	88.56	23.86

IEFs comparability—Why and How?

- Why? Comparability: Allows country emissions to be put in context
- How?:
 - IEFs calculated using UNFCCC activity data
 - Focus on energy combustion sectors for the main pollutants CO, NO_x, NMVOC, and SO_x
 - IEFs flagged if significantly greater or lower than a country group average
 - Issue of clustering – assigning countries to comparable country groupings (technologies etc.)

IEF comparability

e.g. 1A4b Residential: NMVOC

Range of values:

- 0.1726
- 0.1496
- 0.0290
- 0.0996
- 0.0532
- 0.0268
- 0.2265
- 0.1139
- 1.1527
- 0.0371

IEF comparability: example output

Colour Key	
	indicates IEF 5 x greater than the average IEF
	indicates IEF 5 x lower than the average IEF

		1 A 1 a	1 A 1 b	1 A 1 c	1 A 2	1 A 3 b	1 A 3 c	1 A 3 e	1 A 4 b	1 B 1 b
CO	country IEF	0.1396	0.0120	0.0100	0.1529	1.4651	0.2991	5.3699	1.9079	no_em_data
	average IEF	0.0386	0.0384	0.0738	0.3153	1.2866	0.2866	0.7731	1.1739	353.8190
NMVOC	country IEF	0.0136	0.0022	0.0020	0.0250	0.2661	0.0823	0.4432	1.1527	no_em_data
	average IEF	0.0052	0.0035	0.0348	0.0239	0.2207	0.1147	0.1104	0.2061	113.8624
NO _x	country IEF	0.0613	0.0966	0.0301	0.1896	0.3807	1.4957	0.7952	0.0765	no_em_data
	average IEF	0.1443	0.1127	0.2054	0.1755	0.3883	1.0865	0.4650	0.0608	65.2330
SO _x	country IEF	0.0458	0.1475	0.0882	0.0510	0.0018	0.0011	0.0009	0.0246	zero_act
	average IEF	0.2723	0.2837	0.1548	0.1445	0.0071	0.0751	0.0099	0.0449	227.2144

IEF comparability – Summary

- 2005:
 - Percentage of values flagged varied by pollutant from SO_x (highest) to NO_x (lowest)
 - Variability in SO_x IEFs likely reflects intrinsic differences between technologies & abatement options
 - Need to consider careful use of country clustering for comparison – align with UNFCCC checking routines

2004/05 Review Feedback



Information from Parties & MS:

- “For some categories a national differentiation in subcategories is not feasible at the moment”
- *“Zn – it was mistake in the table. National total must be 50.64 tons”*
- “Emissions of Cu have increased due to correction of the emission factor for Cu for heavy duty vehicles”
- *“Jumps/dips are due to declared emission values from industrial plants. However investigations will be carried out in order to confirm these data (incidents?)”*

2004/05 Review Feedback



Information for review team from Parties & MS

- “The title of Figure ‘Average-% values reported per pollutant’ is not self explanatory”
- *“could the review team get rid of obvious notation keys (eg : PAH for cattle etc.) in order that % completeness has a real meaning? ”*
- “This review is very useful for us. It is a good basis to improve the quality of our inventory. ”

Improving the Review

- Feedback welcomed!
- Are the country-report results presented in a way you understand & which is helpful?
- Review team need to put in place a 'knowledge base' & limit the questions to countries
 - Don't ask the same questions each year
 - Take full account of the previous country responses & IIRs
 - Apply tests to key sources only??

Review Report: www.emep.int

