

1 **Emissions of air pollutants and greenhouse gases over**
2 **Asian regions during 2000–2008: Regional Emission**
3 **inventory in ASia (REAS) version 2**

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1 Table S1. Target countries and sub-regions in REAS 2.1

Country/Sub-region	Region Code	Country Code
China/Beijing	CHN	CHN
China/Tianjin		
China/Hebei		
China/Shanxi		
China/Inner Mongolia		
China/Liaoning		
China/Jilin		
China/Heilongjiang		
China/Shanghai		
China/Jiangsu		
China/Zhejiang		
China/Anhui		
China/Fujian		
China/Jiangxi		
China/Shandong		
China/Henan		
China/Hubei		
China/Hunan		
China/Guangdong		
China/Guangxi		
China/Hainan		
China/Chongqing		
China/Sichuan		
China/Guizhou		
China/Yunnan		
China/Tibet		
China/Shaanxi		
China/Gansu		
China/Qinghai		
China/Ningxia		
China/Xinjiang		

China/Hong Kong			
China/Macau			
Japan	OEA	JPN	
Korea, Republic of		KOR	
Korea, Democratic People's Republic of		PRK	
Mongolia		MNG	
Taiwan		TWN	
Brunei Darussalam		SEA	BRN
Cambodia	KHM		
Indonesia	IDN		
Lao People's Democratic Republic	LAO		
Malaysia	MYS		
Myanmar	MMR		
Philippines	PHL		
Singapore	SGP		
Thailand	THA		
Vietnam	VNM		
Bangladesh	OSA		BGD
Bhutan			BTN
India/Andhra Pradesh	IND		ANPR
India/Bihar, Jharkhand		BIHA	
India/Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura		EHIM	
India/Gujarat		GUJA	
India/Haryana		HARY	
India/Karnataka, Goa		KARN	
India/Kerala		KERA	
India/Madhya Pradesh, Chhattisgarh		MAPR	
India/Maharashtra		MAHA	
India/Orissa		ORIS	
India/Punjab, Chandigarh		PUNJ	
India/Rajasthan		RAJA	
India/Tamil Nadu		TAMI	

India/Uttar Pradesh, Uttaranchal		UTPR
India/West Bengal		BENG
India/Himachal Pradesh, Jammu and Kashmir		WHIM
India/Delhi		DELH
Nepal	OSA	NPL
Pakistan		PAK
Sri Lanka		LKA
Afghanistan		AFG
Maldives		MDV
Asian part of Russia/Far East	RCA	FARE
Asian part of Russia/East Siberia		ESIB
Asian part of Russia/West Siberia		WSIB
Asian part of Russia/Ural		URAL
Kazakhstan		KAZ
Kyrgyzstan		KGZ
Tajikistan		TJK
Turkmenistan		TKM
Uzbekistan		UZB

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1 Table S2. National emissions from 2000 to 2008 for (a) SO₂, (b) NO_x, (c) CO, (d) NMVOC,
2 (e) PM₁₀, (f) PM_{2.5}, (g) BC, (h) OC, (i) NH₃, (j) CH₄, (k) N₂O, and (l) CO₂. “Code” refers to
3 country names shown in Table S1 (Country Code).

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1 (a) SO₂ [Gg/year]

Code	2000	2001	2002	2003	2004	2005	2006	2007	2008
CHN	22992	23312	25241	28112	31078	35150	35527	34606	33457
JPN	866	865	890	898	898	874	851	832	761
KOR	491	488	474	469	447	408	446	402	417
PRK	214	222	215	218	224	233	233	212	226
MNG	57	59	63	58	61	64	71	74	73
TWN	197	185	190	171	164	152	148	143	128
BRN	6	7	6	7	8	8	9	9	11
KHM	17	19	19	20	22	23	26	29	31
IDN	1249	1367	1386	1453	1543	1668	1676	1692	1808
LAO	9	9	10	11	11	72	133	137	140
MYS	239	237	302	244	266	288	290	350	357
MMR	82	80	84	87	95	102	71	72	54
PHL	650	632	517	582	556	511	474	500	436
SGP	316	297	263	209	203	211	191	183	177
THA	835	817	782	741	816	795	796	685	678
VNM	307	335	368	364	424	447	463	536	520
BGD	81	88	88	89	91	100	102	106	126
BTN	3	3	4	3	3	4	4	4	4
IND	6574	6883	7103	7288	7771	8465	9212	9809	10077
NPL	26	26	24	25	26	27	28	29	30
PAK	982	966	955	792	928	964	1128	1263	1133
LKA	99	97	100	112	116	131	108	116	111
AFG	2	2	1	2	2	2	2	3	3
MDV	2	2	2	2	2	2	3	3	3
FARE	373	369	356	354	334	335	349	340	349
ESIB	1593	1651	1621	1583	1640	1660	1711	1671	1600
WSIB	657	680	664	654	622	609	647	623	639
URAL	1501	1507	1468	1477	1464	1458	1510	1485	1492
KAZ	1238	1332	1480	1419	1471	1434	1775	1701	1409
KGZ	30	20	30	36	36	32	30	34	34
TJK	7	9	9	9	11	10	11	14	15
TKM	36	37	38	44	43	44	45	54	57
UZB	582	592	608	588	597	575	590	568	560
Total	42315	43192	45361	48122	51972	56861	58659	58284	56913

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1 (b) NO_x [Gg-NO₂/year]

Code	2000	2001	2002	2003	2004	2005	2006	2007	2008
CHN	14272	14869	15971	17486	19543	22127	23825	25696	26969
JPN	2674	2626	2635	2670	2646	2584	2501	2403	2207
KOR	1138	1233	1256	1376	1392	1322	1290	1202	1059
PRK	285	292	284	288	292	301	304	271	288
MNG	105	104	107	99	108	104	121	126	136
TWN	596	560	606	550	560	543	529	503	442
BRN	7	7	7	8	8	8	11	10	11
KHM	120	103	85	67	67	69	69	71	73
IDN	1368	1434	1497	1570	1718	1933	2183	2619	2817
LAO	39	48	49	51	56	60	60	61	61
MYS	399	414	450	460	487	512	538	589	619
MMR	171	162	170	182	262	183	192	219	196
PHL	337	379	356	344	359	349	334	336	349
SGP	139	135	129	113	112	115	112	113	114
THA	664	682	713	756	818	827	821	851	851
VNM	320	327	354	355	399	406	416	439	458
BGD	310	331	341	347	359	376	395	409	434
BTN	13	14	15	17	17	17	17	18	18
IND	7096	7403	7510	8029	8516	9009	9610	10369	11061
NPL	90	91	93	95	101	96	100	100	104
PAK	783	802	908	1017	1071	1088	1118	1139	1160
LKA	110	108	116	119	127	129	130	139	141
AFG	288	139	121	120	135	150	174	190	207
MDV	4	5	6	6	7	7	8	9	10
FARE	597	610	602	620	613	638	612	600	633
ESIB	632	638	632	650	638	633	650	644	671
WSIB	876	896	891	909	901	895	922	927	965
URAL	399	404	406	412	407	409	423	421	432
KAZ	505	518	552	594	611	628	717	732	756
KGZ	43	39	38	45	45	44	44	47	50
TJK	14	18	24	23	26	24	27	35	36
TKM	204	215	221	234	233	238	235	244	248
UZB	314	314	319	321	310	298	306	304	300
Total	34914	35921	37462	39932	42943	46123	48794	51832	53874

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1 (c) CO [Gg/year]

Code	2000	2001	2002	2003	2004	2005	2006	2007	2008
CHN	141835	142788	149430	158057	168545	186643	190162	196081	201967
JPN	6958	6770	6707	6618	6522	6281	5902	5503	5029
KOR	897	842	819	802	814	786	827	796	690
PRK	5091	5188	5034	5106	5168	5387	5430	4807	5137
MNG	339	374	402	412	441	475	523	573	661
TWN	1117	1049	1021	946	994	977	948	859	740
BRN	4	4	4	5	4	5	6	6	6
KHM	1047	1005	963	922	946	967	976	998	1007
IDN	15163	15574	15858	16413	17041	18078	19379	21287	22499
LAO	324	336	349	362	375	388	388	392	386
MYS	2330	2449	2582	2732	2875	2983	3117	3269	3454
MMR	2287	2330	2399	2505	2537	2569	2594	2623	2651
PHL	2365	2335	2318	2283	2277	2264	2269	2271	2286
SGP	112	114	122	123	127	131	138	147	156
THA	6360	6237	6597	7037	7533	7548	7555	7988	8208
VNM	6203	6375	6632	6745	7027	7217	7419	7543	7671
BGD	2068	2119	2158	2198	2237	2288	2332	2380	2444
BTN	237	234	243	245	249	257	256	266	283
IND	46328	47480	49028	50359	51818	53898	55910	58723	61803
NPL	1717	1768	1796	1843	1879	1939	1985	2028	2080
PAK	6639	6845	7108	7541	7838	8045	8298	8713	8596
LKA	1143	1104	1125	1157	1200	1242	1274	1288	1313
AFG	260	266	216	237	243	264	279	364	387
MDV	2	50	65	79	103	94	144	144	146
FARE	2142	2202	2138	2152	2225	2176	2284	2398	2599
ESIB	2164	2222	2197	2241	2309	2293	2437	2555	2782
WSIB	4911	5035	4906	4877	5020	5089	5399	5552	5920
URAL	4365	4341	4266	4250	4327	3679	3757	4052	4011
KAZ	1542	1580	1548	1666	1701	1832	2107	2555	2885
KGZ	211	205	200	201	205	211	224	237	300
TJK	33	69	91	79	106	87	122	198	194
TKM	261	266	271	312	294	307	298	332	371
UZB	976	962	928	1053	808	814	808	817	860
Total	267431	270518	279524	291557	305790	327213	335547	347743	359525

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1 (d) NMVOC [Gg/year]

Code	2000	2001	2002	2003	2004	2005	2006	2007	2008
CHN	15833	16685	17812	19326	21765	23315	25252	26769	27098
JPN	2030	1959	1847	1767	1702	1615	1542	1452	1317
KOR	707	735	741	758	797	756	794	874	857
PRK	174	170	171	171	181	176	175	169	158
MNG	25	26	28	29	32	33	37	42	46
TWN	747	695	702	711	745	730	703	718	687
BRN	27	27	27	29	28	29	32	31	31
KHM	211	202	194	185	191	196	198	204	207
IDN	4382	4567	4722	4986	5282	5701	6134	6814	7316
LAO	66	69	72	74	77	80	80	82	82
MYS	1096	1154	1222	1304	1377	1451	1504	1593	1680
MMR	506	513	537	562	592	625	654	688	724
PHL	750	753	760	767	781	800	812	828	842
SGP	209	216	228	236	260	285	290	308	310
THA	1741	1740	1862	1992	2069	2012	2031	2111	2144
VNM	1248	1295	1368	1400	1478	1532	1584	1623	1660
BGD	605	623	636	656	670	691	711	736	758
BTN	40	41	41	42	43	44	44	45	46
IND	11624	12029	12349	12888	13360	14000	14685	15294	15946
NPL	349	359	369	377	386	396	405	415	425
PAK	1501	1556	1635	1731	1786	1833	1873	1927	1978
LKA	280	275	285	297	314	330	348	360	372
AFG	89	82	72	85	83	91	96	116	122
MDV	1	3	4	4	5	5	7	8	8
FARE	205	214	235	242	252	255	269	282	298
ESIB	263	274	303	313	324	333	351	368	387
WSIB	925	961	1034	1089	1140	1160	1207	1249	1284
URAL	392	406	469	494	518	528	552	579	586
KAZ	271	283	303	320	347	381	423	474	522
KGZ	28	27	28	29	31	31	30	37	41
TJK	16	20	21	21	23	23	25	30	29
TKM	146	153	153	169	163	172	174	194	232
UZB	301	302	306	314	285	282	287	291	307
Total	46787	48412	50537	53370	57090	59889	63310	66710	68501

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1 (e) PM₁₀ [Gg/year]

Code	2000	2001	2002	2003	2004	2005	2006	2007	2008
CHN	14015	14434	15154	16333	17644	19248	20306	21351	21606
JPN	184	180	178	175	169	160	152	144	130
KOR	62	67	65	66	62	67	65	98	110
PRK	290	300	289	295	300	312	319	269	291
MNG	69	68	74	70	70	73	75	79	78
TWN	110	105	104	99	101	102	99	94	86
BRN	2	2	2	2	2	1	1	1	1
KHM	51	52	52	52	53	54	55	56	58
IDN	1095	1137	1152	1155	1144	1164	1237	1307	1327
LAO	21	21	22	22	23	23	24	24	24
MYS	181	193	190	196	183	178	191	220	210
MMR	142	144	148	152	153	154	155	158	160
PHL	243	198	220	200	186	181	160	170	169
SGP	11	11	10	8	8	8	7	7	7
THA	522	543	540	527	541	516	508	499	483
VNM	508	529	560	567	576	578	594	624	650
BGD	175	205	219	233	247	265	283	296	313
BTN	17	18	18	19	19	20	21	22	23
IND	4723	4874	4972	5104	5402	5589	5874	6255	6651
NPL	117	121	124	128	130	135	138	142	146
PAK	452	462	478	499	515	524	542	560	570
LKA	85	87	89	96	106	114	123	130	138
AFG	22	13	12	13	13	14	14	17	18
MDV	0	0	0	0	0	0	0	0	0
FARE	153	162	170	181	198	206	228	246	228
ESIB	258	273	285	307	332	347	380	409	385
WSIB	312	327	341	360	387	444	484	512	479
URAL	827	859	897	943	1018	949	1042	1170	1088
KAZ	172	219	229	256	327	332	381	436	439
KGZ	28	33	38	44	50	55	60	70	69
TJK	10	12	15	19	21	25	28	30	24
TKM	28	28	28	28	34	42	54	55	60
UZB	204	227	251	276	291	290	325	369	374
Total	25088	25904	26925	28423	30305	32174	33923	35819	36397

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1 (f) PM_{2.5} [Gg/year]

Code	2000	2001	2002	2003	2004	2005	2006	2007	2008
CHN	9475	9876	10488	11301	12215	13281	13915	14483	14514
JPN	138	135	133	130	124	118	111	104	94
KOR	41	46	45	46	45	44	42	54	56
PRK	128	132	129	131	133	137	139	121	128
MNG	28	27	31	29	29	30	31	33	33
TWN	68	66	66	62	64	63	61	59	54
BRN	1	1	1	1	1	1	1	1	1
KHM	50	50	50	50	51	52	53	54	55
IDN	873	896	907	905	899	906	944	982	997
LAO	20	20	20	21	21	21	22	22	22
MYS	122	131	129	130	123	118	126	140	132
MMR	137	139	142	146	147	148	149	151	152
PHL	172	144	156	143	132	127	114	116	114
SGP	8	8	7	6	6	6	6	5	5
THA	298	302	306	299	306	290	285	280	267
VNM	426	440	460	466	471	474	485	504	520
BGD	149	164	171	178	185	194	203	210	218
BTN	16	16	16	16	17	17	18	18	19
IND	3535	3640	3725	3839	4000	4152	4327	4600	4884
NPL	110	113	117	120	122	125	128	131	135
PAK	420	430	446	465	479	488	503	518	529
LKA	77	76	78	82	88	93	98	101	106
AFG	21	12	10	11	12	13	13	16	17
MDV	0	0	0	0	0	0	0	0	0
FARE	86	91	94	99	106	110	120	128	122
ESIB	142	149	154	165	177	184	199	213	204
WSIB	182	189	196	204	218	255	275	288	274
URAL	493	507	527	550	590	532	580	657	618
KAZ	105	124	129	140	172	171	192	219	220
KGZ	13	15	17	20	22	25	27	31	31
TJK	6	8	9	11	12	14	15	17	14
TKM	13	13	13	14	16	20	25	26	28
UZB	91	101	111	123	129	128	143	162	165
Total	17445	18059	18886	19904	21113	22337	23350	24446	24729

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1 (g) BC [Gg/year]

Code	2000	2001	2002	2003	2004	2005	2006	2007	2008
CHN	1136	1178	1268	1325	1375	1463	1517	1562	1589
JPN	48	46	45	42	39	35	32	30	26
KOR	14	17	18	18	18	16	15	15	13
PRK	15	15	15	15	15	16	16	14	15
MNG	1	1	1	1	1	1	1	1	1
TWN	12	12	12	11	12	12	12	12	11
BRN	0	0	0	0	0	0	0	0	0
KHM	11	11	11	10	11	11	11	11	11
IDN	139	142	145	148	152	156	164	173	179
LAO	4	4	4	4	4	4	4	4	4
MYS	12	12	13	13	13	14	14	14	15
MMR	27	28	29	29	29	30	30	30	31
PHL	20	19	18	18	17	16	15	15	14
SGP	1	1	1	1	1	1	1	1	1
THA	30	30	32	33	35	34	33	34	33
VNM	71	73	74	75	78	79	79	81	83
BGD	27	27	28	29	29	30	30	31	32
BTN	3	3	3	3	3	3	3	3	3
IND	462	486	506	536	560	590	616	665	713
NPL	21	22	23	23	24	24	25	25	26
PAK	82	85	91	97	99	101	103	105	108
LKA	14	13	14	14	14	15	15	16	16
AFG	11	4	3	4	4	5	5	6	7
MDV	0	0	0	0	0	0	0	0	0
FARE	15	15	15	16	16	16	17	17	19
ESIB	10	10	10	10	10	10	11	11	12
WSIB	25	25	26	26	26	26	27	27	29
URAL	16	16	16	17	17	17	17	18	18
KAZ	7	7	7	8	8	9	10	11	12
KGZ	2	2	1	1	1	1	1	2	2
TJK	0	0	1	0	1	1	1	1	1
TKM	1	1	1	2	2	2	2	2	2
UZB	3	3	3	3	3	3	3	3	3
Total	2240	2311	2433	2533	2618	2740	2832	2942	3029

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1 (h) OC [Gg/year]

Code	2000	2001	2002	2003	2004	2005	2006	2007	2008
CHN	2532	2658	2905	2981	3070	3131	3133	3080	3081
JPN	17	17	16	16	15	13	12	12	10
KOR	11	13	13	13	14	12	12	11	9
PRK	18	18	18	18	18	18	18	18	18
MNG	1	2	2	2	2	2	2	2	2
TWN	7	7	7	7	7	7	7	7	6
BRN	0	0	0	0	0	0	0	0	0
KHM	39	39	40	40	41	41	42	43	43
IDN	624	633	637	641	642	644	663	671	682
LAO	16	16	16	16	16	16	16	16	16
MYS	30	31	31	33	31	32	33	34	34
MMR	111	113	116	118	119	120	121	122	123
PHL	88	82	82	78	75	73	70	69	68
SGP	1	1	1	1	1	1	1	1	1
THA	118	110	118	126	133	134	134	140	142
VNM	276	281	286	291	295	298	302	307	312
BGD	100	103	105	107	108	111	113	115	117
BTN	12	12	12	12	12	13	12	13	13
IND	1762	1806	1854	1907	1949	2004	2045	2164	2286
NPL	85	87	90	92	94	96	98	100	102
PAK	306	313	323	334	343	350	358	366	374
LKA	53	51	51	53	54	56	58	58	59
AFG	11	6	6	6	6	7	7	8	9
MDV	0	0	0	0	0	0	0	0	0
FARE	20	20	20	20	21	21	22	23	23
ESIB	16	16	16	17	17	18	19	20	19
WSIB	41	42	42	43	44	48	50	52	50
URAL	65	66	69	72	75	66	69	77	73
KAZ	18	19	20	21	23	23	24	28	28
KGZ	2	2	2	2	2	2	2	3	3
TJK	0	0	1	1	1	1	1	1	1
TKM	2	2	2	2	2	2	2	3	3
UZB	7	7	8	9	9	9	9	11	11
Total	6385	6571	6908	7075	7238	7369	7457	7573	7719

2

1 (i) NH₃ [Gg/year]

Code	2000	2001	2002	2003	2004	2005	2006	2007	2008
CHN	12544	12631	13573	13373	13095	13572	14349	14567	14844
JPN	539	526	516	510	503	503	507	508	483
KOR	187	181	181	177	191	200	184	195	190
PRK	101	108	106	106	107	107	108	108	106
MNG	119	104	87	84	83	93	103	116	120
TWN	135	135	145	144	142	147	155	158	160
BRN	6	6	6	6	7	6	7	9	8
KHM	97	99	104	110	110	114	121	121	126
IDN	1332	1360	1496	1529	1571	1613	1634	1688	1743
LAO	66	70	71	73	75	75	78	79	84
MYS	171	173	184	191	265	221	222	242	238
MMR	329	337	348	357	397	377	392	420	421
PHL	380	387	388	425	442	425	404	413	415
SGP	7	7	7	9	11	11	12	12	11
THA	477	486	502	563	535	521	533	582	580
VNM	672	615	626	660	731	632	624	666	572
BGD	792	814	826	811	826	849	889	894	936
BTN	39	40	40	41	42	42	42	42	43
IND	8080	8208	8038	8233	8435	8713	9015	9252	9421
NPL	223	225	231	235	247	236	242	244	245
PAK	1265	1290	1321	1357	1402	1471	1543	1544	1595
LKA	107	107	115	105	110	116	112	112	125
AFG	117	109	120	122	125	127	131	125	137
MDV	0	0	0	0	0	0	0	0	0
FARE	21	21	21	20	20	20	20	19	19
ESIB	25	25	25	25	24	24	24	24	23
WSIB	44	43	43	43	43	43	43	43	41
URAL	21	21	22	22	22	22	22	22	22
KAZ	35	35	35	36	37	38	39	40	41
KGZ	11	11	12	12	12	12	12	13	13
TJK	13	13	13	14	14	14	15	15	15
TKM	11	12	11	12	12	13	13	13	14
UZB	48	48	49	50	51	52	53	54	55
Total	28013	28246	29263	29455	29686	30410	31649	32340	32843

2

1 (j) CH₄ [Gg/year]

Code	2000	2001	2002	2003	2004	2005	2006	2007	2008
CHN	48804	49880	53412	58040	62408	66908	69228	70888	75975
JPN	2003	1982	1980	1987	1987	1987	1999	2013	1992
KOR	1165	1160	1116	1112	1126	1132	1144	1162	1171
PRK	599	618	616	628	648	686	690	660	664
MNG	387	345	295	286	283	347	383	440	465
TWN	378	377	377	374	373	381	383	384	385
BRN	536	541	555	576	561	579	604	555	544
KHM	605	613	621	671	655	720	749	759	768
IDN	10241	10165	10222	10191	10382	10593	11030	11193	11398
LAO	293	304	307	315	321	316	333	335	353
MYS	2338	2412	2520	2616	2671	2715	2660	2680	2733
MMR	2419	2471	2499	2579	2635	2884	3064	3133	3146
PHL	1458	1475	1539	1566	1595	1614	1619	1671	1708
SGP	39	41	47	51	55	58	61	63	66
THA	3526	3583	3642	3786	3807	3983	4048	4233	4347
VNM	3175	3194	3296	3346	3720	3837	3960	3984	3909
BGD	3407	3425	3482	3527	3503	3596	3666	3744	3957
BTN	134	128	119	123	121	137	143	143	141
IND	27300	27331	27016	27267	27282	27495	28794	28380	29431
NPL	771	772	784	794	806	814	826	825	852
PAK	3773	3799	3916	4123	4282	4413	4618	4742	4925
LKA	334	319	327	345	315	352	351	334	376
AFG	305	276	304	314	324	326	331	335	368
MDV	1	2	2	2	2	2	3	3	3
FARE	533	547	544	572	598	607	615	620	627
ESIB	1166	1208	1184	1259	1331	1373	1394	1416	1441
WSIB	14652	15263	16122	17451	18566	18934	19299	19566	19697
URAL	2636	2781	2955	3225	3462	3535	3604	3674	3682
KAZ	2161	2352	2628	2881	3287	3392	3632	3731	3980
KGZ	69	70	71	71	73	73	74	76	77
TJK	70	70	70	72	74	76	78	80	82
TKM	1013	1106	1165	1288	1267	1319	1273	1398	1470
UZB	1404	1410	1425	1436	1438	1390	1431	1451	1491
Total	137694	140022	145159	152874	159960	166577	172087	174669	182224

2

1 (k) N₂O [Gg/year]

Code	2000	2001	2002	2003	2004	2005	2006	2007	2008
CHN	2164	2179	2312	2297	2306	2406	2549	2594	2661
JPN	103	91	89	89	90	86	87	84	81
KOR	68	68	69	70	75	77	78	82	82
PRK	18	19	19	19	19	20	20	19	19
MNG	34	31	26	25	25	27	31	34	36
TWN	28	28	29	29	28	29	29	29	29
BRN	2	2	2	2	2	2	2	3	2
KHM	16	17	18	19	19	20	21	21	22
IDN	189	191	201	202	206	209	215	217	219
LAO	10	11	11	10	11	11	11	11	12
MYS	39	40	41	42	52	47	47	50	49
MMR	55	55	56	58	70	60	63	67	65
PHL	63	64	64	68	70	68	65	66	66
SGP	2	2	2	3	3	3	3	3	3
THA	82	83	84	89	88	87	88	92	92
VNM	71	67	69	72	78	72	71	74	68
BGD	92	94	95	93	95	98	103	105	111
BTN	10	10	10	11	11	12	12	11	11
IND	1505	1528	1479	1522	1542	1590	1648	1695	1721
NPL	41	41	42	43	46	42	43	43	42
PAK	249	250	255	262	272	284	294	292	301
LKA	13	13	13	12	13	13	13	13	14
AFG	33	38	42	41	42	44	56	45	45
MDV	0	0	0	0	0	0	0	0	0
FARE	4	4	4	4	4	4	4	4	4
ESIB	5	5	5	5	5	5	6	6	5
WSIB	9	9	9	9	10	10	10	10	10
URAL	5	5	5	5	5	5	6	6	5
KAZ	6	6	6	6	7	7	7	8	8
KGZ	1	1	1	1	1	1	1	1	1
TJK	1	1	1	1	1	1	1	1	1
TKM	3	3	3	3	3	3	3	4	5
UZB	8	8	9	9	9	9	9	10	10
Total	4929	4964	5074	5124	5207	5351	5595	5699	5804

2

1 (l) CO₂ [Tg/year]

Code	2000	2001	2002	2003	2004	2005	2006	2007	2008
CHN	4556	4678	5105	5694	6469	7440	8185	9015	9478
JPN	1213	1211	1236	1269	1275	1250	1246	1259	1192
KOR	447	466	470	476	498	498	510	523	532
PRK	76	79	76	77	79	82	84	70	78
MNG	9	9	10	9	10	10	11	12	12
TWN	230	236	245	255	265	272	280	284	271
BRN	5	5	5	6	5	5	8	7	8
KHM	13	14	14	15	15	16	16	17	17
IDN	443	461	470	478	492	501	520	549	573
LAO	6	6	6	6	6	6	6	6	6
MYS	128	133	140	145	155	168	175	196	206
MMR	40	39	41	43	45	48	47	49	48
PHL	101	98	98	100	101	101	94	102	103
SGP	46	44	41	37	38	40	39	39	40
THA	206	211	223	238	259	267	271	276	280
VNM	127	134	146	152	174	178	184	194	206
BGD	49	54	56	58	60	64	67	70	76
BTN	4	4	4	4	4	4	4	4	4
IND	1547	1572	1611	1646	1730	1791	1892	1992	2103
NPL	28	28	29	29	30	31	32	32	33
PAK	185	187	192	197	213	217	231	248	245
LKA	26	26	26	27	28	30	29	30	29
AFG	2	2	2	2	2	2	2	2	2
MDV	0	1	1	1	1	1	2	2	2
FARE	106	108	106	106	102	103	109	109	109
ESIB	172	171	169	172	167	167	178	169	170
WSIB	297	302	297	301	296	294	308	308	310
URAL	163	165	165	168	165	165	174	172	172
KAZ	125	128	135	150	160	170	191	197	208
KGZ	5	4	5	6	6	6	5	7	7
TJK	3	3	3	3	3	3	3	4	4
TKM	37	38	39	43	40	42	42	46	48
UZB	129	130	135	131	128	124	129	129	128
Total	10523	10747	11299	12043	13019	14094	15073	16119	16701

2

1 Table S3. Emissions from each sector and fuel type in 2000, 2004 and 2008 for (a) China, (b)
2 India, (c) East Asia outside China, (d) Southeast Asia, (e) South Asia outside India, and (f)
3 Asian Russia and Central Asia. (Abbreviations for sectors: PP = Power plants, IND = Industry
4 (including INP = Industrial processes), ROAD = Road transport, OTRA = Other transport,
5 TRA = Transport (total), DOM = Domestic, CMB = Combustion (total), EF = Enteric
6 fermentation, FER = Fertilizer application, MM = Manure management, RICE = Rice
7 cultivation, SOIL = Soil emissions (for NO_x), SOIL_D = Direct soil emissions (for N₂O),
8 SOIL_I = Indirect soil emissions (for N₂O), EXT = Extraction processes,
9 F_COAL/F_OIL/F_GAS = Fugitive emissions related to coal/oil/gas, LTRN = Latrines, SLV
10 = Solvent and paint use, WASTE = Waste treatment, MISC = Miscellaneous. Abbreviations
11 for fuels: COAL = Primary and secondary coal, OIL = Oil products, Gas = Gas products,
12 OTH = Other fuels including biofuel, NCMB = Non combustion sources.)
13

1 (a) China ([Gg yr⁻¹] except for CO₂; [Tg] for CO₂)

SO ₂	2000	2004	2008	NO _x	2000	2004	2008
PP	10298	16359	12307	PP	4722	7751	10873
IND	9616	11386	17108	IND	2932	3792	6514
ROAD	86	141	223	ROAD	2716	3172	3420
OTRA	302	387	667	OTRA	690	1312	2187
DOM	2690	2805	3152	DOM	1648	1879	2122
				SOIL	1563	1639	1852
COAL	19886	26446	27355	COAL	7186	10923	16608
OIL	1542	1941	2111	OIL	4812	6080	7294
GAS	383	456	968	GAS	174	243	547
OTH	304	373	349	OTH	536	658	668
NCMB	877	1863	2673	NCMB	1563	1639	1852
CO	2000	2004	2008	NMVOC	2000	2004	2008
PP	1441	2653	3732	EXT	527	718	1024
IND	49479	70107	101474	SLV	3597	6839	10216
ROAD	42397	38286	38634	IND	1289	1680	2520
OTRA	40	41	60	TRA	7072	8541	9390
DOM	48477	57458	58066	DOM	3320	3941	3876
				MISC	29	47	72
COAL	45765	56750	77712	COAL	409	463	527
OIL	42504	38401	38772	OIL	6502	7702	8038
GAS	74	113	211	GAS	35	56	89
OTH	37700	45852	44296	OTH	2907	3473	3378
NCMB	15792	27429	40976	NCMB	5979	10072	15066
PM ₁₀	2000	2004	2008	PM _{2.5}	2000	2004	2008
PP	1833	1921	2783	PP	1107	1186	1663
IND	7719	10466	13523	IND	4383	6285	8189
ROAD	257	351	390	ROAD	250	340	377
OTRA	84	78	115	OTRA	29	31	47
DOM	4121	4829	4794	DOM	3706	4372	4237
COAL	3930	4239	6018	COAL	2286	2474	3311
OIL	343	462	529	OIL	321	432	493
GAS	0	0	0	GAS	0	0	0
OTH	3026	3670	3496	OTH	2930	3554	3385
NCMB	6716	9273	11563	NCMB	3938	5755	7326

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BC	2000	2004	2008	OC	2000	2004	2008
PP	3	4	4	PP	0	0	0
IND	380	482	710	IND	285	373	529
ROAD	124	158	170	ROAD	60	87	99
OTRA	6	6	9	OTRA	1	1	2
DOM	623	725	696	DOM	2185	2608	2450
COAL	238	249	333	COAL	326	332	325
OIL	135	173	189	OIL	64	93	107
GAS	0	0	0	GAS	0	0	0
OTH	486	593	560	OTH	1878	2297	2162
NCMB	276	359	508	NCMB	264	347	487
N ₂ O	2000	2004	2008	CH ₄	2000	2004	2008
MM	369	366	369	EF	8673	7954	7406
SOIL_D	877	920	1029	MM	1756	1710	1880
SOIL_I	721	762	913	RICE	7187	6754	6884
WASTE	68	71	74	F_COAL	14292	26860	38565
INP	27	40	64	F_OIL	5959	6629	7245
CMB	101	146	211	F_GAS	478	718	1415
				WASTE	7455	8157	8800
				CMB	3004	3626	3781
COAL	57	86	136	COAL	842	979	1109
OIL	18	28	43	OIL	100	142	209
GAS	0	0	1	GAS	5	6	11
OTH	26	32	30	OTH	2054	2496	2449
NCMB	2062	2159	2449	NCMB	45800	58782	72195
NH ₃	2000	2004	2008	CO ₂	2000	2004	2008
CMB	607	748	733	PP	1306	2199	3304
FER	7517	7809	9410	IND	1927	2632	4269
MM	2690	2744	2825	ROAD	175	267	433
LTRN	1381	1416	1460	OTRA	55	86	138
MISC	350	378	416	DOM	1093	1286	1333
COAL	9	13	21	COAL	2724	3957	6166
OIL	9	16	30	OIL	591	799	1072
GAS	1	1	3	GAS	231	336	553
OTH	588	718	679	OTH	557	687	658
NCMB	11937	12346	14111	NCMB	453	690	1028

1 (b) India ([Gg yr⁻¹] except for CO₂; [Tg] for CO₂)

SO ₂	2000	2004	2008	NO _x	2000	2004	2008
PP	3191	3754	4689	PP	2019	2421	3050
IND	2525	3018	4107	IND	635	690	842
ROAD	167	183	238	ROAD	2292	3150	4669
OTRA	27	23	51	OTRA	104	111	176
DOM	664	792	992	DOM	779	858	942
				SOIL	1268	1286	1382
COAL	3502	4213	5536	COAL	2030	2436	3124
OIL	1764	1877	2249	OIL	2864	3742	5412
GAS	31	50	65	GAS	117	159	196
OTH	390	398	408	OTH	818	893	947
NCMB	887	1233	1820	NCMB	1268	1286	1382
CO	2000	2004	2008	NMVOC	2000	2004	2008
PP	1690	2068	2571	EXT	196	217	262
IND	11849	12739	15292	SLV	630	778	1080
ROAD	5601	7781	11068	IND	1700	1858	2070
OTRA	86	93	146	TRA	2625	3851	5558
DOM	27102	29138	32726	DOM	6388	6547	6852
				MISC	85	108	124
COAL	7466	8569	12932	COAL	129	148	248
OIL	5995	8184	11601	OIL	2527	3722	5377
GAS	14	21	26	GAS	5	6	8
OTH	30414	32691	34585	OTH	7639	7841	8107
NCMB	2439	2352	2659	NCMB	1325	1643	2206
PM ₁₀	2000	2004	2008	PM _{2.5}	2000	2004	2008
PP	1254	1580	1986	PP	515	651	822
IND	939	994	1170	IND	683	729	861
ROAD	353	518	755	ROAD	340	498	726
OTRA	5	6	9	OTRA	5	6	8
DOM	2172	2303	2731	DOM	1991	2116	2467
COAL	1584	1965	2760	COAL	744	916	1371
OIL	412	579	826	OIL	394	551	789
GAS	0	0	0	GAS	0	0	0
OTH	2265	2377	2477	OTH	2122	2240	2341
NCMB	461	481	588	NCMB	275	293	384

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BC	2000	2004	2008	OC	2000	2004	2008
PP	7	8	10	PP	19	25	31
IND	73	80	89	IND	302	320	336
ROAD	104	160	242	ROAD	96	146	218
OTRA	0	1	1	OTRA	0	0	1
DOM	278	311	371	DOM	1346	1457	1700
COAL	43	51	97	COAL	152	177	354
OIL	108	164	246	OIL	104	154	226
GAS	0	0	0	GAS	0	0	0
OTH	296	331	355	OTH	1459	1572	1660
NCMB	15	15	15	NCMB	48	46	46
N ₂ O	2000	2004	2008	CH ₄	2000	2004	2008
MM	228	228	232	EF	10296	10208	10266
SOIL_D	660	672	719	MM	1328	1347	1376
SOIL_I	522	536	644	RICE	6067	5736	7345
WASTE	36	38	43	F_COAL	306	372	471
INP	14	17	25	F_OIL	1362	1432	1405
CMB	47	51	59	F_GAS	469	515	555
				WASTE	3979	4300	4625
				CMB	3494	3372	3387
COAL	11	13	17	COAL	53	56	67
OIL	10	11	14	OIL	39	47	64
GAS	0	1	1	GAS	2	2	2
OTH	25	26	27	OTH	3400	3267	3253
NCMB	1460	1491	1663	NCMB	23807	23910	26043
NH ₃	2000	2004	2008	CO ₂	2000	2004	2008
CMB	564	593	624	PP	547	650	832
FER	4431	4621	5440	IND	385	419	508
MM	1599	1636	1678	ROAD	87	93	122
LTRN	1168	1247	1323	OTRA	6	7	11
MISC	319	339	356	DOM	523	560	630
COAL	2	2	3	COAL	612	724	962
OIL	4	6	8	OIL	278	292	356
GAS	0	1	1	GAS	79	91	106
OTH	557	584	612	OTH	515	542	568
NCMB	7517	7842	8797	NCMB	64	81	111

1 (c) East Asia outside China ([Gg yr⁻¹] except for CO₂; [Tg] for CO₂)

SO ₂	2000	2004	2008	NO _x	2000	2004	2008
PP	546	569	472	PP	705	795	547
IND	814	781	750	IND	939	952	866
ROAD	47	24	4	ROAD	1757	1942	1565
OTRA	168	175	166	OTRA	691	632	532
DOM	251	245	212	DOM	558	532	465
				SOIL	146	145	157
COAL	631	656	635	COAL	731	841	729
OIL	951	892	706	OIL	3431	3534	2798
GAS	29	29	28	GAS	239	261	245
OTH	65	73	71	OTH	126	123	116
NCMB	150	144	165	NCMB	271	240	246
CO	2000	2004	2008	NM VOC	2000	2004	2008
PP	96	92	113	EXT	205	220	199
IND	3634	3838	3780	SLV	1884	1691	1558
ROAD	8950	8306	6662	IND	449	417	368
OTRA	317	300	285	TRA	958	919	725
DOM	1405	1403	1419	DOM	134	148	153
				MISC	11	14	18
COAL	3169	3310	3330	COAL	25	30	32
OIL	9563	8915	7220	OIL	1080	1047	845
GAS	172	196	209	GAS	49	57	73
OTH	1366	1411	1394	OTH	17	17	18
NCMB	132	107	105	NCMB	2511	2307	2095
PM ₁₀	2000	2004	2008	PM _{2.5}	2000	2004	2008
PP	143	145	149	PP	56	57	59
IND	306	321	351	IND	147	159	159
ROAD	131	116	82	ROAD	110	100	72
OTRA	36	34	28	OTRA	26	24	21
DOM	99	87	85	DOM	63	54	53
COAL	338	343	410	COAL	122	125	150
OIL	242	222	169	OIL	188	173	133
GAS	4	4	5	GAS	3	3	3
OTH	33	34	33	OTH	26	27	26
NCMB	98	99	79	NCMB	64	68	52

2

BC	2000	2004	2008	OC	2000	2004	2008
PP	0	0	0	PP	0	0	0
IND	14	17	15	IND	9	10	9
ROAD	63	57	39	ROAD	27	27	20
OTRA	4	3	3	OTRA	1	1	1
DOM	9	8	8	DOM	16	16	17
COAL	13	14	15	COAL	5	6	7
OIL	71	64	46	OIL	31	30	22
GAS	0	0	0	GAS	0	0	0
OTH	4	4	4	OTH	14	14	14
NCMB	2	4	2	NCMB	4	5	3
N ₂ O	2000	2004	2008	CH ₄	2000	2004	2008
MM	36	31	37	EF	847	738	867
SOIL_D	58	58	59	MM	151	143	147
SOIL_I	49	44	46	RICE	861	825	791
WASTE	14	13	13	F_COAL	417	387	467
INP	39	34	42	F_OIL	19	16	25
CMB	58	57	51	F_GAS	161	188	225
				WASTE	1837	1876	1904
				CMB	239	244	253
COAL	15	17	17	COAL	52	57	62
OIL	38	34	28	OIL	105	102	92
GAS	3	4	4	GAS	17	18	21
OTH	2	2	2	OTH	65	67	79
NCMB	196	180	197	NCMB	4293	4173	4426
NH ₃	2000	2004	2008	CO ₂	2000	2004	2008
CMB	35	42	43	PP	616	749	815
FER	428	394	396	IND	705	714	662
MM	429	404	436	ROAD	306	330	315
LTRN	95	87	82	OTRA	44	41	36
MISC	93	99	101	DOM	305	292	257
COAL	2	2	3	COAL	590	735	781
OIL	23	29	29	OIL	901	875	747
GAS	3	3	3	GAS	349	368	405
OTH	7	7	8	OTH	84	94	100
NCMB	1046	983	1015	NCMB	51	54	52

1 (d) Southeast Asia ([Gg yr⁻¹] except for CO₂; [Tg] for CO₂)

SO ₂	2000	2004	2008	NO _x	2000	2004	2008
PP	1515	1564	1674	PP	705	863	1116
IND	1501	1610	1826	IND	489	622	841
ROAD	255	286	286	ROAD	1257	1560	2488
OTRA	83	95	58	OTRA	196	193	140
DOM	359	391	366	DOM	352	381	386
				SOIL	566	668	576
COAL	1032	1326	1744	COAL	435	635	1057
OIL	2078	1910	1625	OIL	2011	2357	3196
GAS	1	1	1	GAS	221	278	352
OTH	220	230	242	OTH	333	348	366
NCMB	381	479	599	NCMB	566	668	576
CO	2000	2004	2008	NM VOC	2000	2004	2008
PP	155	251	441	EXT	570	673	748
IND	4058	3813	4210	SLV	1668	1982	2382
ROAD	8369	11351	17222	IND	1262	1330	1466
OTRA	21	20	15	TRA	3078	4239	6323
DOM	23594	25308	26436	DOM	3596	3830	3961
				MISC	61	80	116
COAL	190	335	433	COAL	23	39	54
OIL	8801	11849	17695	OIL	2630	3664	5669
GAS	66	82	108	GAS	13	17	22
OTH	26654	28037	29719	OTH	4152	4335	4563
NCMB	486	440	369	NCMB	3416	4080	4688
PM ₁₀	2000	2004	2008	PM _{2.5}	2000	2004	2008
PP	340	449	578	PP	103	132	167
IND	1042	924	939	IND	657	582	579
ROAD	68	87	119	ROAD	66	84	115
OTRA	2	2	1	OTRA	1	1	1
DOM	1325	1406	1452	DOM	1282	1359	1404
COAL	381	527	748	COAL	116	163	237
OIL	111	124	151	OIL	95	109	137
GAS	0	0	0	GAS	0	0	0
OTH	1347	1422	1474	OTH	1305	1379	1429
NCMB	938	795	716	NCMB	591	508	464

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BC	2000	2004	2008	OC	2000	2004	2008
PP	1	1	1	PP	0	0	0
IND	24	24	31	IND	248	228	241
ROAD	35	43	58	ROAD	30	40	59
OTRA	0	0	0	OTRA	1	1	1
DOM	256	272	281	DOM	1023	1084	1121
COAL	5	8	15	COAL	2	3	4
OIL	37	46	60	OIL	32	42	60
GAS	0	0	0	GAS	0	0	0
OTH	261	276	286	OTH	1200	1247	1302
NCMB	12	11	10	NCMB	68	61	55
N ₂ O	2000	2004	2008	CH ₄	2000	2004	2008
MM	69	78	87	EF	2731	2891	3189
SOIL_D	270	291	275	MM	544	638	717
SOIL_I	134	166	168	RICE	8657	8775	9494
WASTE	18	21	23	F_COAL	1060	1890	3041
INP	0	1	1	F_OIL	5153	4976	4690
CMB	37	42	46	F_GAS	2247	2683	2967
				WASTE	2982	3218	3456
				CMB	1255	1331	1418
COAL	2	3	5	COAL	11	21	26
OIL	15	17	17	OIL	78	91	99
GAS	2	2	3	GAS	5	7	9
OTH	19	20	21	OTH	1160	1213	1284
NCMB	491	557	554	NCMB	23374	25071	27554
NH ₃	2000	2004	2008	CO ₂	2000	2004	2008
CMB	415	436	465	PP	236	283	368
FER	1826	2286	2187	IND	312	375	474
MM	578	663	744	ROAD	174	212	220
LTRN	575	607	640	OTRA	10	10	8
MISC	142	153	162	DOM	383	410	417
COAL	1	1	1	COAL	143	210	342
OIL	7	9	13	OIL	417	454	434
GAS	2	2	3	GAS	151	189	244
OTH	406	424	448	OTH	358	374	395
NCMB	3120	3709	3732	NCMB	45	63	72

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1 (e) SA outside India ([Gg yr⁻¹] except for CO₂; [Tg] for CO₂)

SO ₂	2000	2004	2008	NO _x	2000	2004	2008
PP	538	342	639	PP	177	202	253
IND	332	478	411	IND	93	126	146
ROAD	190	209	208	ROAD	523	610	736
OTRA	14	16	18	OTRA	31	38	43
DOM	120	123	134	DOM	321	349	380
				SOIL	454	492	516
COAL	138	310	290	COAL	23	44	55
OIL	918	705	963	OIL	687	750	928
GAS	0	0	0	GAS	102	168	182
OTH	98	106	115	OTH	333	362	393
NCMB	40	46	42	NCMB	454	492	516
CO	2000	2004	2008	NMVOC	2000	2004	2008
PP	31	32	42	EXT	109	150	172
IND	1484	2000	2231	SLV	493	559	650
ROAD	677	906	1222	IND	209	235	253
OTRA	26	31	36	TRA	301	437	569
DOM	9848	10782	11717	DOM	1734	1885	2041
				MISC	21	23	26
COAL	399	802	983	COAL	5	8	9
OIL	751	984	1318	OIL	277	404	529
GAS	32	45	54	GAS	4	6	7
OTH	10776	11800	12803	OTH	1893	2059	2231
NCMB	108	119	90	NCMB	688	812	934
PM ₁₀	2000	2004	2008	PM _{2.5}	2000	2004	2008
PP	9	7	17	PP	5	4	9
IND	169	267	361	IND	118	166	213
ROAD	48	61	77	ROAD	47	59	75
OTRA	2	2	2	OTRA	2	2	2
DOM	641	694	751	DOM	621	672	727
COAL	7	6	16	COAL	3	2	7
OIL	61	72	89	OIL	57	69	85
GAS	0	0	0	GAS	0	0	0
OTH	700	760	823	OTH	678	736	797
NCMB	101	193	280	NCMB	54	96	135

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BC	2000	2004	2008	OC	2000	2004	2008
PP	0	0	0	PP	0	0	0
IND	14	16	18	IND	58	66	74
ROAD	22	25	31	ROAD	18	21	26
OTRA	0	0	0	OTRA	0	0	0
DOM	121	132	142	DOM	489	530	574
COAL	0	0	0	COAL	1	0	1
OIL	23	26	31	OIL	19	22	27
GAS	0	0	0	GAS	0	0	0
OTH	133	145	157	OTH	538	584	632
NCMB	2	2	3	NCMB	8	12	14
N ₂ O	2000	2004	2008	CH ₄	2000	2004	2008
MM	91	96	109	EF	3184	3396	3886
SOIL_D	162	183	190	MM	380	414	468
SOIL_I	162	175	198	RICE	2585	2515	2901
WASTE	11	13	14	F_COAL	27	40	41
INP	1	0	0	F_OIL	115	131	135
CMB	11	12	13	F_GAS	506	722	834
				WASTE	1450	1614	1786
				CMB	476	521	572
COAL	0	0	0	COAL	1	1	1
OIL	3	3	3	OIL	8	11	19
GAS	0	1	1	GAS	2	3	3
OTH	7	8	9	OTH	465	507	549
NCMB	427	467	511	NCMB	8247	8832	10051
NH ₃	2000	2004	2008	CO ₂	2000	2004	2008
CMB	166	181	196	PP	48	54	70
FER	1288	1384	1561	IND	52	69	84
MM	600	654	752	ROAD	32	37	43
LTRN	388	421	454	OTRA	2	2	3
MISC	102	111	117	DOM	159	175	191
COAL	0	0	0	COAL	8	16	21
OIL	1	1	1	OIL	80	76	95
GAS	0	1	1	GAS	44	68	78
OTH	165	179	194	OTH	153	167	181
NCMB	2378	2570	2884	NCMB	8	11	16

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1 (f) Asian Russia and Central Asia ([Gg yr⁻¹] except for CO₂; [Tg] for CO₂)

SO ₂	2000	2004	2008	NO _x	2000	2004	2008
PP	2974	2922	3007	PP	1371	1398	1434
IND	2717	3004	2822	IND	237	261	282
ROAD	55	63	64	ROAD	753	812	1053
OTRA	25	25	27	OTRA	129	136	139
DOM	248	204	234	DOM	225	209	249
				SOIL	870	966	934
COAL	2969	3001	3175	COAL	1096	1107	1133
OIL	666	599	549	OIL	1032	1075	1323
GAS	27	31	79	GAS	573	624	691
OTH	8	6	6	OTH	13	11	9
NCMB	2349	2580	2344	NCMB	870	966	934
CO	2000	2004	2008	NM VOC	2000	2004	2008
PP	763	631	500	EXT	991	1177	1321
IND	3805	3810	3232	SLV	443	693	837
ROAD	9343	10756	14768	IND	230	258	293
OTRA	32	34	36	TRA	760	855	1144
DOM	2663	1764	1388	DOM	82	59	52
				MISC	40	41	41
COAL	1891	1209	769	COAL	65	44	33
OIL	9502	10903	14947	OIL	529	606	827
GAS	225	232	247	GAS	31	33	40
OTH	1320	1002	921	OTH	25	22	21
NCMB	3667	3648	3040	NCMB	1897	2379	2766
PM ₁₀	2000	2004	2008	PM _{2.5}	2000	2004	2008
PP	36	35	31	PP	20	20	16
IND	1838	2509	2977	IND	1000	1313	1525
ROAD	85	89	111	ROAD	83	88	109
OTRA	0	0	0	OTRA	0	0	0
DOM	33	25	28	DOM	29	22	25
COAL	25	23	23	COAL	6	6	6
OIL	85	90	112	OIL	84	88	110
GAS	0	0	0	GAS	0	0	0
OTH	46	40	39	OTH	44	39	37
NCMB	1835	2506	2974	NCMB	998	1310	1523

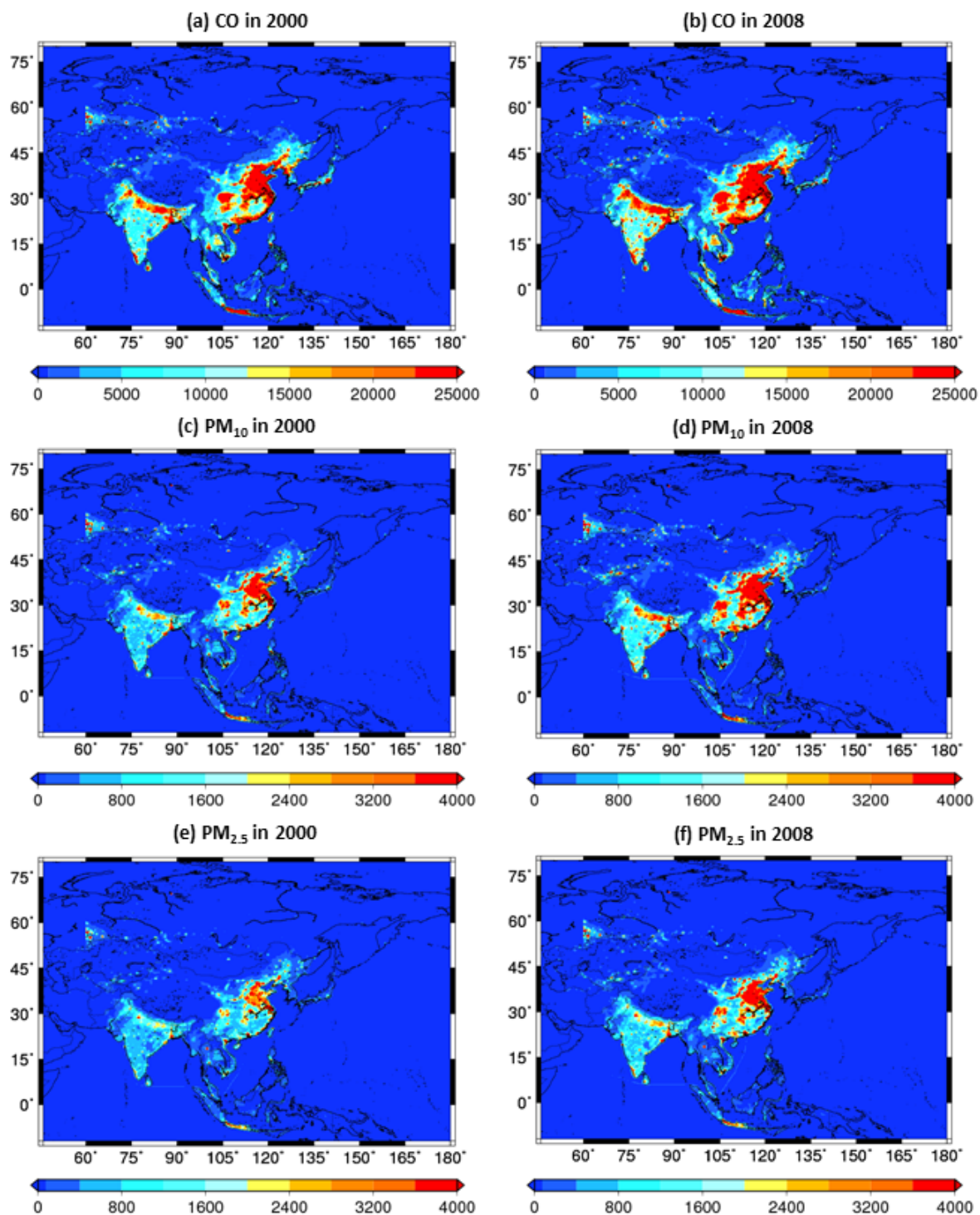
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BC	2000	2004	2008	OC	2000	2004	2008
PP	3	3	2	PP	11	12	9
IND	22	27	29	IND	99	126	134
ROAD	48	51	63	ROAD	36	39	48
OTRA	0	0	0	OTRA	0	0	0
DOM	6	4	5	DOM	23	18	20
COAL	0	0	0	COAL	0	0	0
OIL	48	51	63	OIL	36	39	48
GAS	0	0	0	GAS	0	0	0
OTH	9	8	7	OTH	35	31	30
NCMB	22	26	28	NCMB	98	124	132
N ₂ O	2000	2004	2008	CH ₄	2000	2004	2008
MM	1	1	1	EF	157	173	185
SOIL_D	7	7	8	MM	16	17	16
SOIL_I	1	1	1	RICE	14	12	11
WASTE	5	5	6	F_COAL	2050	2308	2660
INP	9	10	12	F_OIL	12203	17518	18844
CMB	19	20	21	F_GAS	8104	8935	9689
				WASTE	981	989	1008
				CMB	177	146	133
COAL	9	9	10	COAL	99	69	48
OIL	6	6	7	OIL	30	32	39
GAS	3	4	4	GAS	15	16	18
OTH	1	1	1	OTH	33	29	28
NCMB	23	24	28	NCMB	23525	29952	32413
NH ₃	2000	2004	2008	CO ₂	2000	2004	2008
CMB	18	17	18	PP	611	627	635
FER	39	42	45	IND	185	198	238
MM	25	26	25	ROAD	50	55	66
LTRN	108	109	111	OTRA	25	30	31
MISC	39	41	44	DOM	165	156	186
COAL	2	2	2	COAL	448	446	458
OIL	2	2	3	OIL	142	140	154
GAS	3	4	4	GAS	391	418	480
OTH	11	10	9	OTH	25	26	23
NCMB	203	209	217	NCMB	29	36	42

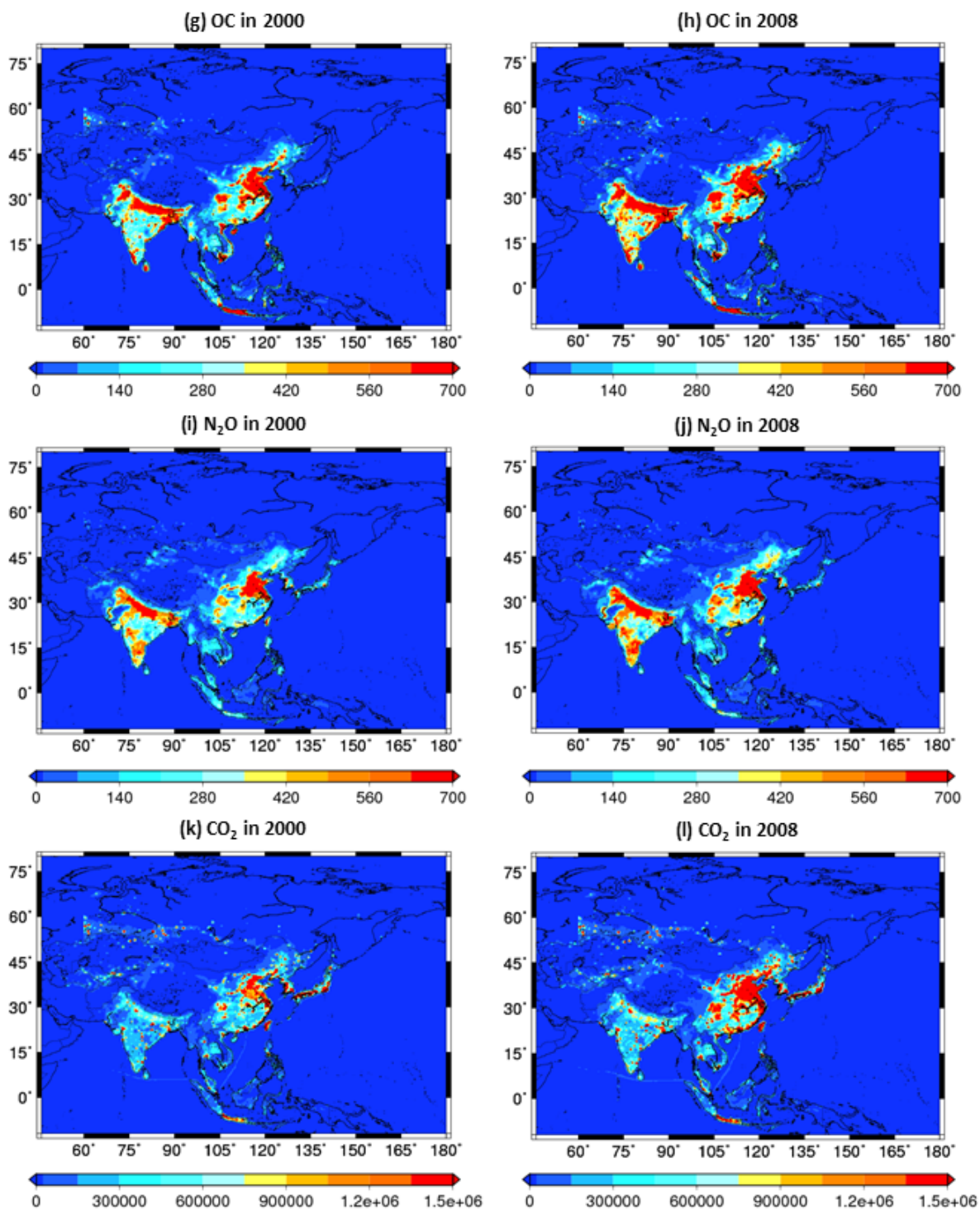
1 Table S4. Comparison of emissions in East Asia outside China between REAS version 1 (v1)
 2 and version 2 (v2) for the year 2000 (Gg yr⁻¹). Soil NO_x emissions are not included in this
 3 table.

	SO ₂		NO _x		CO	
	v1	v2	v1	v2	v1	v2
Japan	926	866	1959	2635	2661	6958
Korea, Rep of	986	491	1559	1118	4627	897
Korea, DPR	297	214	221	275	5363	5901
Mongolia	88	57	41	34	395	339
Taiwan	266	197	648	589	2299	1117
Total	2563	1825	4428	4651	15345	15212
	BC		OC		NMVOC	
	v1	v2	v1	v2	v1	v2
Japan	75	48	44	17	1880	2030
Korea, Rep of	33	14	57	11	1134	707
Korea, DPR	42	15	117	18	200	174
Mongolia	4	1	13	1	23	25
Taiwan	10	12	10	7	502	747
Total	164	90	241	54	3739	3683

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 2 Figure S1. Spatial distribution of annual emissions (Mg yr⁻¹ per grid cell) of CO, PM₁₀, PM_{2.5},
 3 OC, N₂O, and CO₂ in 2000 and 2008.
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2 Figure S1. (continued).