



APPENDIX AVAILABLE ON THE HEI WEBSITE

Special Report 21

Burden of Disease Attributable to Major Air Pollution Sources in India

GBD MAPS Working Group

**Appendix B. Estimated Emissions of PM_{2.5}, BC, OC, SO₂, NO_x, and
NMVOCs at the State Level and by Sector**

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This document was made possible, in part, through the support provided by the William and Flora Hewlett Foundation and the Oak Foundation. The contents of this document have not been reviewed by these or other institutions, including those that support the Health Effects Institute; therefore, it may not reflect the views or policies of these parties, and no endorsement by them should be inferred.

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Table B.1. Emissions (MT) by State (2015)

States	PM_{2.5}	BC	OC	SO₂	NO_x	NMVOCs
Andaman and Nicobar	0.124	0.001	0.003	0.426	0.460	0.032
Arunachal Pradesh	0.006	0.001	0.002	0.000	0.002	0.010
Assam	0.144	0.031	0.048	0.067	0.096	0.266
Bihar	0.747	0.117	0.245	0.331	0.338	1.754
Chandigarh	0.067	0.012	0.029	0.008	0.011	0.122
Chhattisgarh	0.327	0.020	0.024	0.643	0.704	0.124
Dadra and Nagar Haveli	0.002	0.000	0.000	0.003	0.003	0.006
Diu and Daman	0.001	0.000	0.000	0.000	0.002	0.002
Goa	0.008	0.002	0.001	0.009	0.011	0.013
Gujarat	0.505	0.073	0.089	0.904	0.701	0.881
Haryana	0.305	0.041	0.084	0.216	0.322	0.530
Himachal Pradesh	0.030	0.007	0.009	0.004	0.023	0.048
Jammu and Kashmir	0.058	0.011	0.019	0.007	0.026	0.101
Jharkhand	0.230	0.043	0.069	0.186	0.181	0.404
Karnataka	0.439	0.065	0.109	0.338	0.432	0.702
Kerala	0.142	0.029	0.034	0.107	0.133	0.271
Lakshadweep	0.002	0.001	0.001	0.000	0.004	0.005
Madhya Pradesh	0.498	0.074	0.107	0.532	0.678	0.706
Maharashtra	0.437	0.070	0.073	0.570	0.709	0.917
Manipur	0.013	0.003	0.005	0.001	0.022	0.023
Meghalaya	0.009	0.002	0.002	0.002	0.008	0.010
Mizoram	0.195	0.029	0.082	0.011	0.022	0.372
Nagaland	0.017	0.003	0.004	0.002	0.014	0.027
NCT Delhi	0.060	0.011	0.009	0.057	0.097	0.132
Orissa	0.372	0.050	0.077	0.489	0.319	0.472
Puducherry	0.004	0.001	0.001	0.003	0.006	0.008
Punjab	0.450	0.050	0.133	0.189	0.405	0.768
Rajasthan	0.515	0.078	0.131	0.680	0.536	0.681
Seemandhra	0.323	0.051	0.082	0.220	0.265	0.572
Sikkim	0.003	0.001	0.001	0.000	0.001	0.004
Tamilnadu	0.441	0.065	0.089	0.461	0.576	0.685
Telangana	0.232	0.036	0.059	0.158	0.190	0.410
Tripura	0.019	0.003	0.007	0.001	0.008	0.033
Uttar Pradesh	1.676	0.231	0.508	0.915	1.510	3.579
Uttarakhand	0.043	0.010	0.014	0.006	0.048	0.090
West Bengal	0.656	0.098	0.186	0.544	0.637	1.078
All India	9.101	1.320	2.337	8.091	9.498	15.839

Table B.2. Emissions (MT) by Sector (2015)

Sector	Source Category	PM _{2.5}	BC	OC	SO ₂	NO _x	NMVOCs
Residential combustion biofuel	Residential cooking biomass	2.117	0.251	0.844	0.163	0.271	4.227
	Residential space heating	0.919	0.175	0.384	0.131	0.043	1.393
	Residential water heating	0.477	0.069	0.202	0.029	0.010	1.163
		3.512	0.495	1.431	0.322	0.324	6.783
Open burning	Open burning	1.030	0.081	0.362	0.075	0.451	1.749
Industrial combustion	Thermal power plant (coal)	1.003	0.008	0.026	3.595	3.738	0.234
	Heavy industry	1.048	0.064	0.063	2.632	0.964	0.575
	Light industry	0.125	0.029	0.008	1.020	0.544	1.052
		2.176	0.101	0.097	7.246	5.246	1.861
Bricks	Brick production	0.386	0.136	0.063	0.331	0.399	1.027
Traffic	On-road gasoline/CNG	0.053	0.008	0.038	0.008	0.240	1.923
	On-road diesel	0.208	0.137	0.044	0.042	0.974	0.410
	Railway	0.003	0.002	0.001	0.002	0.182	0.011
		0.263	0.147	0.082	0.052	1.396	2.344
Dispersed diesel	Agricultural tractors	0.076	0.050	0.016	0.003	0.570	0.103
	Agricultural pumps	0.030	0.020	0.006	0.003	0.427	0.034
	Diesel gensets	0.026	0.017	0.006	0.003	0.372	0.030
		0.133	0.088	0.028	0.009	1.369	0.167
Others	Residential Cooking kerosene/LPG	0.004	0.000	0.001	0.003	0.000	0.201
	Residential lighting	0.213	0.206	0.001	0.000	0.000	0.000
	Informal industry	0.183	0.021	0.072	0.019	0.058	0.167
	Trash burn	0.738	0.044	0.200	0.034	0.255	1.540
	Urban fugitive dust	0.462	0.000	0.000	0.000	0.000	0.000
		1.600	0.272	0.275	0.056	0.313	1.907
National total emissions		9.101	1.320	2.337	8.091	9.498	15.839