


ENVIRONMENTAL DEFENSE FUND

## Estimating the Health Impacts of Coal-Fired Power Plants Receiving International Financing



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finding the ways that work

ENVIRONMENTAL DEFENSE FUND Foreclosing the Future – Health Impacts

# We estimate that at least **6,000 to 10,700** annual deaths can be attributed to the 88 coal-fired power plants and companies receiving public international financing.

ENVIRONMENTAL DEFENSE FUND Foreclosing the Future – Health Impacts

## Air Pollution from Coal-Fired Power Plants Causes:



- Premature death from heart and lung diseases
- Lung Cancer
- Infant death
- Non-fatal heart and lung disease
- Worsening of asthma

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## Method of analysis

- Estimate emissions of air pollutants
  - Fine particles and particle precursors
- Estimate fraction of air pollution inhaled by populations within fixed distance
- Estimate deaths resulting from population exposures

## Key assumptions

- Use of flue gas desulfurization
- Type of coal burned
- Exact location of some plants

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Estimated Mortality in Exposed Population Attributable to Coal-Plant Emissions Supported by Public International Financing				
Particulate Type	Exposure Variable	Attributable Health Outcomes		
	Emission Amount (millions of lb)	Cardiopulmonary Mortality (# cases)	Lung Cancer Mortality (# cases)	Total Deaths
PM (direct)	190	1200	80	1300
SO <sub>2</sub> * (assumed + known FGD vs. only known FGD)	4100	4400	200	4600
	7100	8700	600	9300
NO <sub>2</sub>	560	90	10	100
<b>Total Deaths</b>		5700	300	6000
		10,000	700	10,700

\*SO<sub>2</sub> and TOTALS are presented with lower and upper mortality bounds to reflect Flue-Gas Desulfurization (FGD) utilization assumptions. The lower bound assumes all plants of unknown FGD status in fact do utilize FGD, while the upper bound assumes that only those reported to have FGD in fact do.

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Coal Plants with Three Largest Contributions to Mortality in Exposed Populations				
Plant Name; Location; Financer	Annual Mortality Attributable to Plant's Emissions of Direct PM, SO <sub>2</sub> *, NO <sub>2</sub>			
	Cardiopulmonary Mortality (# cases)	Lung Cancer Mortality (# cases)	Total Mortality	
Barh; India; JBIC	870	30	900	
Yangzhou-2; China; World Bank	730	70	800	
Kahalgaon; India; ADB	480	10	490	
<b>Plant Totals</b>	<b>2080</b>	<b>110</b>	<b>2190</b>	

\*Non-FGD status reported for these plants



## Summary

- At least 6000-10,700 annual deaths
- Figures likely underestimate true burden
  - Used conservative dose-response value
  - Not all pollutants; not all health effects
- Health impact assessments should be required of all major energy projects, especially those using public funding

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