

Summary of Environmental Policy Since Earth Day

By Myrick Freeman

1. The principal environmental legislation was passed after 1970.
2. The goals of environmental policy can be to balance benefits and cost (economic efficiency) or the policy can be based on a goal such as safety, protection of human health, protection of ecosystems or the achievement of technically feasible levels of emissions control.
3. The Clean Air Act and the Federal Water Pollution Act explicitly rejected the economic approach to goal setting and emphasized protection of human health and achieving fishable and swim able water quality. The Clean Air Act set standards independently of cost considerations. However, subsequent legislation explicitly or implicitly introduced economic criteria. Also, executive directives set requirements for federal agencies to perform economic assessments of major legislation. These are known as regulatory impact assessments.
4. Emissions and Air Quality
The discussion shows that the Clean Air Act had a significant effect in reducing emissions. But, it can be argued that the regulations could be more stringent.
5. Benefits and Costs of Clean Air Act
Freeman undertook an early study in which he found that overall benefits exceed costs by 20 to 25 percent. But, the regulations on mobile sources costs exceeded benefits by a wide margin. Most of the estimated benefits were due to reductions in premature mortality associated with airborne particulates.

The EPA, in a study published in 1997, estimates the benefits to exceed costs by between 30 to 45 times. The estimates are higher than Freeman for several reasons.

- (1) Higher values for reduced mortality,
- (2) Greater sensitivity of mortality to particulates,
- (3) Different assumptions about pollution with the act, and
- (4) The inclusions of additional years with improved air quality.

The value of the benefits is about 20% of the value of personal income. But Freeman believes that he would pay 20% of his income for the improvement.

About 75 percent of the benefit is reduced mortality associated with the control of particulates, and 8% of benefits are reduced bronchitis from the same cause. The benefits of reductions in lead are about 8% of benefits. Freeman concludes that the control of stationary sources and lead were highly cost effective while the control of mobile sources were not.

6. The EPA has published its estimates of the prospective benefits of the 1990 Amendments. It finds benefits well in excess of costs. One specific program with a very high benefit to cost ratio is the programs which limits emissions of stratospheric ozone-depletion such as chlorofluorocarbons. The benefits are 33 billion over 75 years and costs are only 2 billion. Freeman questions these very high estimates of benefits. He also concludes that Title 11, which establishes emission standards for vehicles, the reformulated gasoline and the inspection and requirement of vehicles is not cost effective. The basis for this conclusion is that of the \$145 billion in benefits, \$139 billion are attributed to the health benefits of controlling particulate matter emissions. The provisions that reduce the level of ozone are not cost effective as costs are at least twice the level of benefits. Another general conclusion is that an analysis is needed that breaks out the benefits and costs of specific components.

7. Points of Controversy

- (a) The EPA analysis implies that about 10% of all mortality in the US is associated with particulate air pollutions, which seems high.
- (b) The value of life saved is 6.5 million. This may be appropriate for a 40 year old, but seems high for a 70 year old.
- (c) Costs are too low.

8. Another way of measuring benefits and cost is to look at the regulatory impact assessments for specific regulations introduced under the act. One analyst looked at 136 of these promulgated between 1981 and 1996. For the Clean Air Act, 35 final rules were estimated to produce net benefits of 660 billion, but 2/3 of this total is due to one regulation that reduced the lead content of gasoline. Only 19 of 35 yield positive benefits. Also, there is the problem that agencies overstate benefits and understate costs.
9. Following the 1996 tightening of standards for ozone and small particulates, a process of legal litigation followed. In 2004, the Supreme Court ruled that the Clean Air Act precludes consideration of costs setting standards, and that EPA discretion in setting standards, although vague, was acceptable. But, EPA is in the awkward situation of being required by executive order to do a benefit-cost study, but is bound by law to ignore the cost side.

The analysis EPA presently shows large net benefits for the small particulate regulation. But the estimate for the net benefits of ozone is highly uncertain as the link between mortality and ozone is not well established.

10. The Clean Water Act

Under this act technologically based standards were established by EPA. Benefits and costs played no role. One study estimates that the number of river miles meeting standards for swimming, fishing, and boating increased by 6.3 percent, 4.2 percent, and 2.8 percent.

Estimates for benefits are in short supply. For a partial list of benefits, the value is 10 billion a year. In 1990, water control costs were 60 billion a year. Also, an analysis of the regulatory impact assessment showed that aggregate benefits were about 5 percent of costs.

11. The Federal Insecticide, Fungicide, Rodenticide Act and The Toxic Substance Act not much evidence, but whatever evidence there is shows small benefits relative to costs. These and the Safe water Act explicitly calls for a consideration of benefits and costs.
12. Safe water Drinking Water Act
For the control of the ten most cost-effective contaminants (primarily volatile organic compounds), the cost per cancer death avoided is a low \$2.9 million. For the program as a whole, the number is a respectable \$4.7 million per death avoided. But most of the benefits are for the rule dealing with lead. But for the remaining 60 carcinogens, the amount is very high, \$127 million.
13. The general finding is the same for Superfund. For 145 sites, the mean cost is \$3.5 million per cancer case avoided. But for 70 percent of the sites, the cost is \$142 million per case avoided.
14. The winners share the common characteristics of involving treatment to human health, especially mortality. Losers – mobile sources among others.
15. It may be that health benefits are underestimated. Also, omitted benefits could include protection of ecological systems and their services, preservation of biodiversity and what is called “nonuse” or existence value – meaning the value that people place on a clean environment as a goal in itself.