

**AN ADAPTIVE COST-BENEFIT MODEL: THE VALUE OF ECOSYSTEM  
SERVICES IN THE REUSE OF SUPERFUND SITES**

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19 November 2003 (Draft)

*Keywords:* Superfund, remediation, reuse, modeling, cost-benefit, ecosystem services

## **ABSTRACT**

The costs of the environmental restoration of contaminated sites are huge. The largest cost driving remediation of Superfund sites is that of adverse human health effects, but additional costs to a community derive from the lack of optimal reuse of Superfund sites once they are remediated. We developed an adaptive cost-benefit model elucidating relationships between alternatives for both remediation and reuse, and we quantified our selected alternatives using Analytica and Microsoft Excel decision-making software. Our study site was an abandoned landfill in New Jersey. Site treatments considered were a combination of groundwater remediation, either by pumping and air-stripping the volatile organic compounds alone or with the prior injection of surfactant, and soil remediation, either by excavation and removal or by phytoremediation. Potential reuse alternatives included residential housing or “ecological reuse,” i.e., reuse based on the benefits of the use of a pineland area for its hunting, wildlife, and aesthetics and of the resource value derived from carbon sequestration, timber harvest, watershed preservation, and enhanced property values.