

## Abstract

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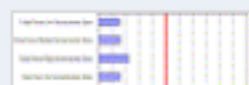
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## Abstract

Santiago, Chile has the distinction of having among the worst urban air pollution problems in Latin America. As part of an atmospheric pollution reduction plan, the Santiago Regional Metropolitan government defined an environmental policy goal of using urban forests to remove particulate matter less than 10  $\mu\text{m}$  (PM<sub>10</sub>) in the *Gran Santiago* area. We used cost effectiveness, or the process of establishing costs and selecting least cost alternatives for obtaining a defined policy goal of PM<sub>10</sub> removal, to analyze this policy goal. For this study, we quantified PM<sub>10</sub> removal by Santiago's urban forests based on socioeconomic strata and using field and real-time pollution and climate data via a dry deposition urban forest effects model. Municipal urban forest management costs were estimated using management cost surveys and Chilean Ministry of Planning and Cooperation documents. Results indicate that managing municipal urban forests (trees, shrubs, and grass whose management is under the jurisdiction of Santiago's 36 municipalities) to remove PM<sub>10</sub> was a cost-effective policy for abating PM<sub>10</sub> based on criteria set by the World Bank. In addition, we compared the cost effectiveness of managing municipal urban forests and street trees to other control policies (e.g. alternative fuels) to abate PM<sub>10</sub> in Santiago and determined that municipal urban forest management efficiency was similar to these other air quality improvement measures.

## Keywords

Cost-effective analysis; Urban forest management; Air pollution abatement; Street trees; Ecosystem services

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