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## Abstract

In Chinese cities, air pollution has become a serious and aggravating environmental problem undermining the sustainability of urban ecosystems and the quality of urban life. Besides technical solutions to abate air pollution, urban vegetation is increasingly recognized as an alternative ameliorative method by removing some pollutants mainly through dry deposition process. This paper assesses the capability and monetary value of this ecosystem service in Guangzhou city in South China. The results indicated an annual removal of SO<sub>2</sub>, NO<sub>2</sub> and total suspended particulates at about 312.03 Mg, and the benefits were valued at RMB90.19 thousand (US\$1.00=RMB8.26). More removal was realized by recreational land use due to a higher tree cover. Higher concentration of pollutants in the dry winter months induced more removal. The lower cost of pollution abatement in China generated a relatively subdued monetary value of this environmental benefit in comparison with developed countries. Younger districts with more extensive urban trees stripped more pollutants from the air, and this capacity was anticipated to increase further as their trees gradually reach final dimensions and establish a greater tree cover. Tree cover and pollutant concentration constitute the main factors in pollutant removal by urban trees. The efficiency of atmospheric cleansing by trees in congested Chinese cities could be improved by planting more trees other than shrubs or grass, diversifying species composition and biomass structure, and providing sound green space management. The implications for greenery design were discussed with a view to maximizing this ecosystem service in Chinese cities and other developing metropolises.

## Keywords

Air pollution; Ecosystem service; Green space; Monetary value; Non-market commodity; Sustainable development; Urban ecology; Urban forest; Urban tree; Guangzhou; China