

CARBON SEQUESTRATION IN URBAN FORESTS: APPROACHES AND VALUES

Project Summary

INTRODUCTION

Forest carbon sequestration is one of the key approaches to reducing atmospheric carbon concentrations. It is a safe, environmentally acceptable, and cost-effective way to capture and store substantial amounts of atmospheric carbon. The role of forests in sequestering carbon is becoming increasingly recognized, and financial incentives to consider carbon storage benefits in management decisions are also emerging with the development of tradable carbon storage credits.

Rapidly growing urban and suburban areas in the United States continue to encompass more and more forestland. The forestland which escapes development is gradually removed from industrial timber management and becomes an urban forest. Today, for example, nearly 20 percent of forestland in Georgia is located in metropolitan areas. Urban forests which are owned and managed by local governments and non-profit organizations frequently become permanent reserves—areas which will not be subject to commercial harvest in the foreseeable future. Therefore, unlike commercial forests, urban forests can under certain conditions be considered as a permanent repository of carbon. As the area of urban forests grows, so does their potential to store atmospheric carbon.

Given the substantial potential of urban forests to store carbon in trees and soils and interest in research linking urban forests to carbon storage, there is a need to develop procedures and protocols that would facilitate carbon projects and transactions. In addition to helping reduce atmospheric carbon concentrations, carbon sequestration projects could provide local governments and non-profit organizations with additional income to conserve, sustain and expand urban forests.

OBJECTIVES

The overall purpose of this project is to evaluate carbon sequestration opportunities provided by urban forests in the United States and to develop successful approaches to carbon credit trading. The project has the following measurable objectives:

1. Examine worldwide status and trends of carbon sequestration in urban forestry.
2. Assess motivations and objectives for urban carbon sequestration with stakeholders, including potential sellers (e.g., cities, counties, and non-profit organizations) and potential buyers (e.g., major energy utilities, manufacturers, and retailers).
3. Develop protocols for measuring, monitoring, and auditing carbon sequestered in urban forests.
4. Develop tradable carbon credits that will effectively meet market objectives.

METHODS

Objective 1: Conduct literature review, including search of databases and web-sites of major organizations involved in carbon sequestration and urban forestry.

Objective 2: Develop survey questionnaires for municipalities, non-profits and corporations to ascertain willingness, motives, and objectives for participation in an urban carbon credit program. Organize and sponsor a conference of stakeholders, urban forest and nonprofit managers, and other key personnel to inform them about the state of current efforts and discuss the needs, objectives, and potential for carbon trading in urban forests.

Objective 3: Develop a reliable and practicable carbon accounting system for urban vegetation (existing and new plantings) to allow for automated reporting to inventory forms for 1605(b). The system will include requirements for (1) establishing baseline carbon estimates, (2) estimating changes in carbon accumulation using inventory models, (3) auditing carbon accumulation, and (4) reporting. This objective will incorporate the use of the “i-TREE” software suite developed by the US Forest Service for urban forestry and will cover both above-the-ground and below-the-ground carbon.

Objective 4: Develop tradable carbon credits considering existing trading vehicles and new approaches such as permanent and temporary credits, along with effective valuation methods based on financial and price theories.

SCHEDULE

The project will commence as of October 1, 2005 and will last until September 30, 2007 for a total period of two years.

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